

AN ATTEMPT TO PREDICT PROBABLE COMBAT EFFECTIVENESS
BY BRIEF PSYCHIATRIC EXAMINATION¹ALBERT J. GLASS, M.D.,² SAN FRANCISCO

The purpose of this study was to ascertain the feasibility of predicting the potential psychiatric battle casualty by a brief personality evaluation. It seemed reasonable to assume that the so-called "weaker" individual from a psychiatric standpoint would be more vulnerable to the terrorizing environment of modern battle and thus become an early victim of combat neurosis. If the screening of potential early neuropsychiatric casualties were possible and practicable, it would be of military value by eliminating ineffective soldiers before they become a burden to their unit or a problem to the Medical Department of the Army.

METHOD

The most suitable subjects for such a project would be infantry soldiers with no previous combat experience who were soon to engage in battle. An opportunity to examine such a group presented itself on April 18, 1944 when the 88th Infantry Division received 740 replacements. All these individuals were enlisted men with 7 to 10 months of army service who had recently arrived in the Mediterranean Theatre. They had had no previous combat experience and were assigned to the 3 infantry regiments of the division.

This group was held at the division rear area for a 10-day period of processing and training. Psychiatric interviews were conducted at this time, from April 21-27, 1944. Subjects were selected at random and were chiefly those who at the moment were not occupied with some portion of the training program. The interview was held in an informal manner, the subject was told that this was merely a survey which had no bearing on his assignment or army record; that the information would be considered anonymous since the survey was only designed to obtain a general impression of the new re-

placement. A total of 192 of the 740 replacements were interviewed. The average time of each interview was approximately 10-15 minutes. The remainder of the replacements, numbering 548 who were not interviewed, served as the control group.

NEUROTIC INDEX

An arbitrary method of scoring was devised in which neurotic predisposition was estimated by considering 5 major categories, namely: (1) family history for neuroticism and disharmony, (2) childhood neurotic traits, (3) medical history, (4) adult neurotic manifestations, (5) the degree of insecurity.

Each of the above categories was graded as mild, moderate, or severe to indicate the degree of severity in a numerical ratio. The scoring under each major heading was as follows: mild— $\frac{1}{3}$, moderate— $\frac{2}{3}$, severe—1.

The neurotic index varied from 0 to 5 and theoretically at least the larger the score the more the individual was predisposed to neurotic failure in battle.

It is obvious that much of the scoring is dependent on the history as given by the subject. However, as in other psychiatric data, most of the material can only be obtained in such a subjective manner. Also, in the scoring, the judgment of the examiner as to the grading of mild, moderate, or severe is based upon what he considers as the standard for these terms. An effort was made to reduce this subjective element to a more objective status.

Under the heading of family history, a statement that the mother was nervous, without a history of nervous breakdown or treatment for a nervous disorder was considered as mild, the same for father or a sibling. Severe nervousness or insanity of such an immediate member was scored as moderate. Stated nervousness of two or more members of a family was rated as moderate. Family disharmony without separation was con-

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sidered mild. Separation or divorce of parents during the subject's childhood before 12 years was rated as moderate. A total score of 1 or severe for the family history would have to include elements of neuroticism and family disharmony.

Under childhood neurotic traits 6 characteristics were specifically questioned, namely; temper tantrums, nail biting, enuresis beyond 8 years, abnormal fears, excessive illness, and abnormal sleep disturbances (frequent somnambulism or nightmares). A positive history of one neurotic trait was considered mild; of two, moderate; and three or more, severe.

Under the heading of adult neurotic manifestations the question was asked of the subject, "Do you consider yourself nervous in any way?" It was scored as mild if he gave such answers as—"I can't stand excitement," "I've always been nervous," "I'm jumpy," etc. Moderate was scored if treated for nervousness by an M.D. or a habit of specific medication was obtained. Severe was scored only when a history of nervous breakdown or its equivalent was elicited.

The medical history was regarded as the individual's preoccupation with disease or symptoms of a chronic, recurrent nature. Thus occasional recurrent backache, headache, indigestion, vertigo, palpitation, etc., were recorded as mild. If these symptoms were frequent and severe and required the seeking of medical aid, they were scored as moderate. Severe was scored when it was evident that the symptoms or syndrome was a constant preoccupation which caused the individual to be inefficient for repeated periods in civilian life.

The fifth heading, degree of insecurity, was the most difficult to evaluate in any objective manner. Here the examiner followed the classification of Horney and attempted to evaluate the character constellation which served to protect the individual from hostile external forces. The over-dependent, over-aggressive, over-careful individuals were rated as mild, moderate, or severe according to the impression made upon the examiner at the time of the interview.

The 192 subjects examined were separated into 4 groups in the following manner:

1. Neurotic index 0-1 inclusive designated as the nonneurotic group included 67 men.

2. 1½-2 inclusive were considered the mild neurotic group and included 58 subjects.

3. 2½-3½ inclusive were called the moderate neurotic group and included 54 individuals.

4. 3½-5 were called the severe neurotic group, which numbered 13 of the men examined.

It should be pointed out that the designations given above to these groups do not imply clinical entities but are merely used to denote the degree of neurotic predisposition calculated from the psychiatric interview. It was reasonable to predict that cases of combat "exhaustion" would increase in proportion to the numerical value of the neurotic index, with the highest percentage of such cases in the severe neurotic group.

During the interview period, material was obtained which was not considered in the individual scoring of the neurotic index. This was done to determine the influence of such factors as age, school and work record, marital status, origin from urban versus rural sections, and sibling relationships.

These subjects had previously been screened by induction, the rigors of basic training, and the so-called final examination before arriving overseas. It was a typical replacement group considered to be fit and ready for combat duty. Most of the men entered into combat duty about May 1, 1944. The 88th Division at that time maintained a defensive position at the Garigliano River before the Gustav Line. On May 11, 1944 offensive combat against heavy opposition began.

RESULTS

The 88th Division completed its first combat phase on June 12, 1944. From June 18 to 26, 1944 the division records were searched and the companies found to which the men had been assigned. The examiner went to each company, obtaining from the commanding officer, 1st sergeant, or other officers and noncommissioned officers the answers to the following questions:

1. Was the soldier with you in combat?
2. How was his performance in combat?

It became apparent that many of the men predicted to be psychiatric casualties had been evacuated early in the combat phase with such vague diagnoses and mild illnesses

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as: not yet diagnosed, administrative admission to determine physical fitness, chronic prostatitis, hyperhidrosis, sprain, right ankle, etc. Others were not present because of disciplinary reasons or transfer to less hazardous assignments. As the number of such cases far exceeded the NP exhaustion rate it was felt reasonable to suspect them of psychogenic causation. It was suggested to the author by Major Stephen Ransome, an associate at the Army Psychiatric Center, that the concept of combat effectiveness should be used rather than the incidence of combat neurosis. Thus all cases evacuated for any noncombat reason would be considered as combat ineffective. This has its practical side for, to the average line officer, it makes no material difference what the diagnosis was, so long as the individual was unable to perform effective work in combat. But, the psychogenic factor in illness, where one soldier with a sprained ankle or painful feet goes on and another with the same degree of disability is only too willing to drop out, would be included in considering the casualties from the standpoint of combat inefficiency. It is admitted that some legitimately ill soldiers will be included, yet their percentage will be similar in all groups. This concept was adopted in the scoring of the results.

A preliminary survey of the results at this time (July 1, 1944) revealed no great difference between the combat efficiency of the normal, mild neurotic, and moderate neurotic groups. They varied from 75%-86% effectiveness for that period. However, the severe neurotic group showed a marked discrepancy, being only 41% effective during the same action.

Because of the pressure of other duties further follow-up studies were not possible until the latter part of March 1945, approximately 9 months after the initial combat phase. At this time both the examined and control groups of replacements had experienced 205 days of combat divided into 5 distinct periods, 3 of the offensive type and 2 defensive in nature. A careful study of the 88th Division records which pertained to the original 740 replacements was undertaken at this time. A fact not fully appreciated in the initial survey was revealed. This con-

cerned the noticeable difference in the battle casualty rate of the various combat assignments. While all the assigned men were within artillery range and could be considered combat soldiers, there is such a marked difference in the casualty rates even between rifle and heavy weapons companies that it is obvious that the men assigned to rifle companies are exposed to the greatest degree as regards the stress and strain of battle. Fig. 1 graphically illustrates the loss of the men to the division from various causes and the number remaining on duty status as of April 1, 1945. Because it is reasonable to assume that the amount of psychic trauma is greatest in rifle companies, it became necessary in order to make for uniform results and greater accuracy to drop from the examined group any subject who did not participate in combat with a rifle company. Therefore, the original group of 192 men was restricted to the 146 subjects who were originally assigned to rifle companies.

The concept of combat effectiveness was adopted as the standard for determining the battle efficiency. Thus during any one period an individual was considered effective only if he participated throughout the combat period or was unable to complete the period because of battle causes (KIA, MIA, WIA). Failure to complete the combat period for any other reason (disease, self-inflicted wounds, injury, administrative transfer, disciplinary) was scored as ineffective. The number and percentage of those who were unable to participate in the later combat periods because of unavoidable battle causes were considered in a separate category in the scoring of the results. The total number of men assigned to rifle companies from the 740 replacements will be utilized as the control group. These number 555 and contain the 146 subjects who were examined. A summary of the results of the 5 combat periods is illustrated in Fig. 2.

COMMENT

The results of this attempt to predict the combat effectiveness of infantry replacements demonstrate that a partial degree of success was attained. By the utilization of a rating scale as described above, it was

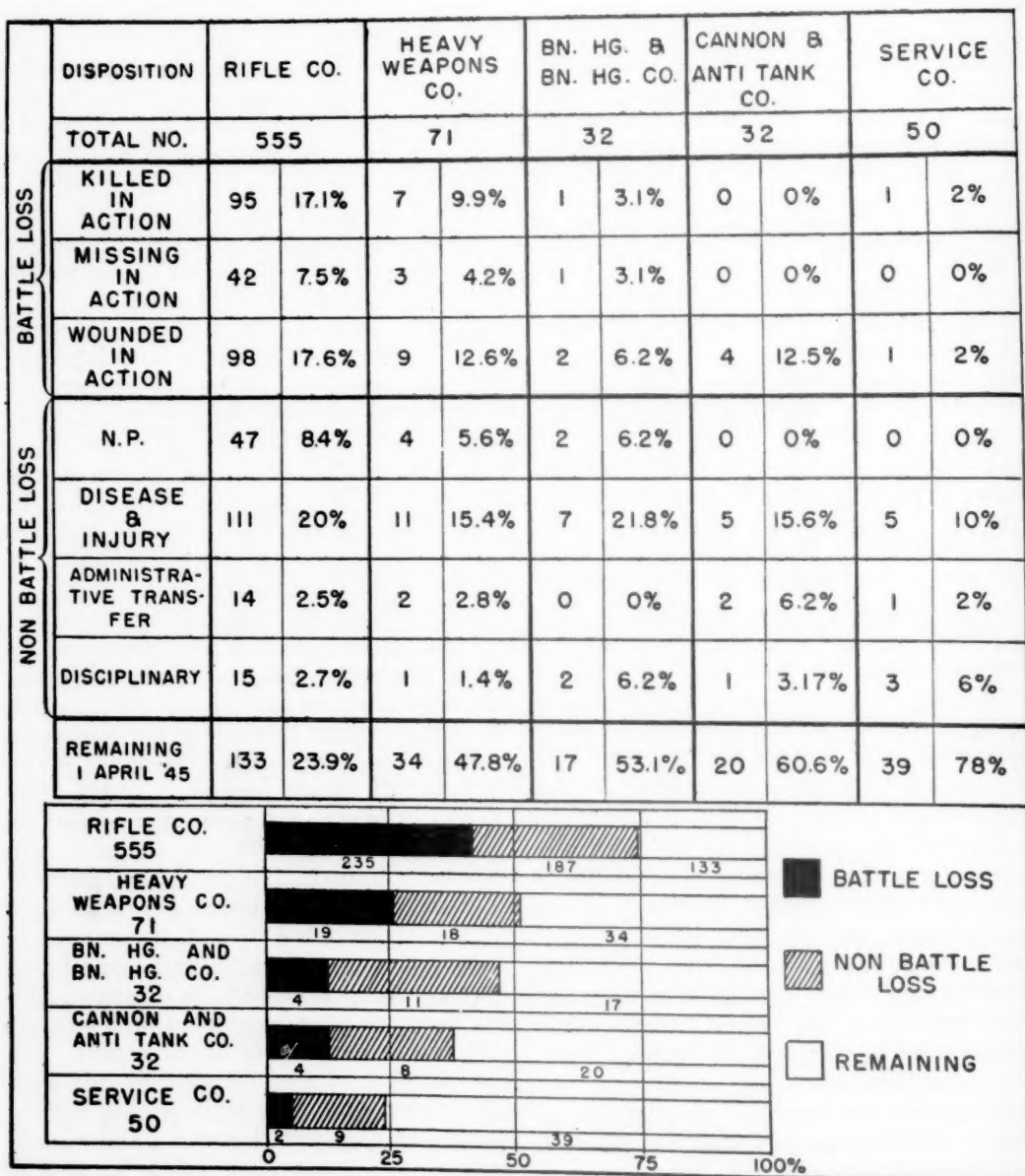


FIG. 1.—Attrition among 740 infantry replacements as related to types of assignment (May 1, 1944-April 1, 1945).

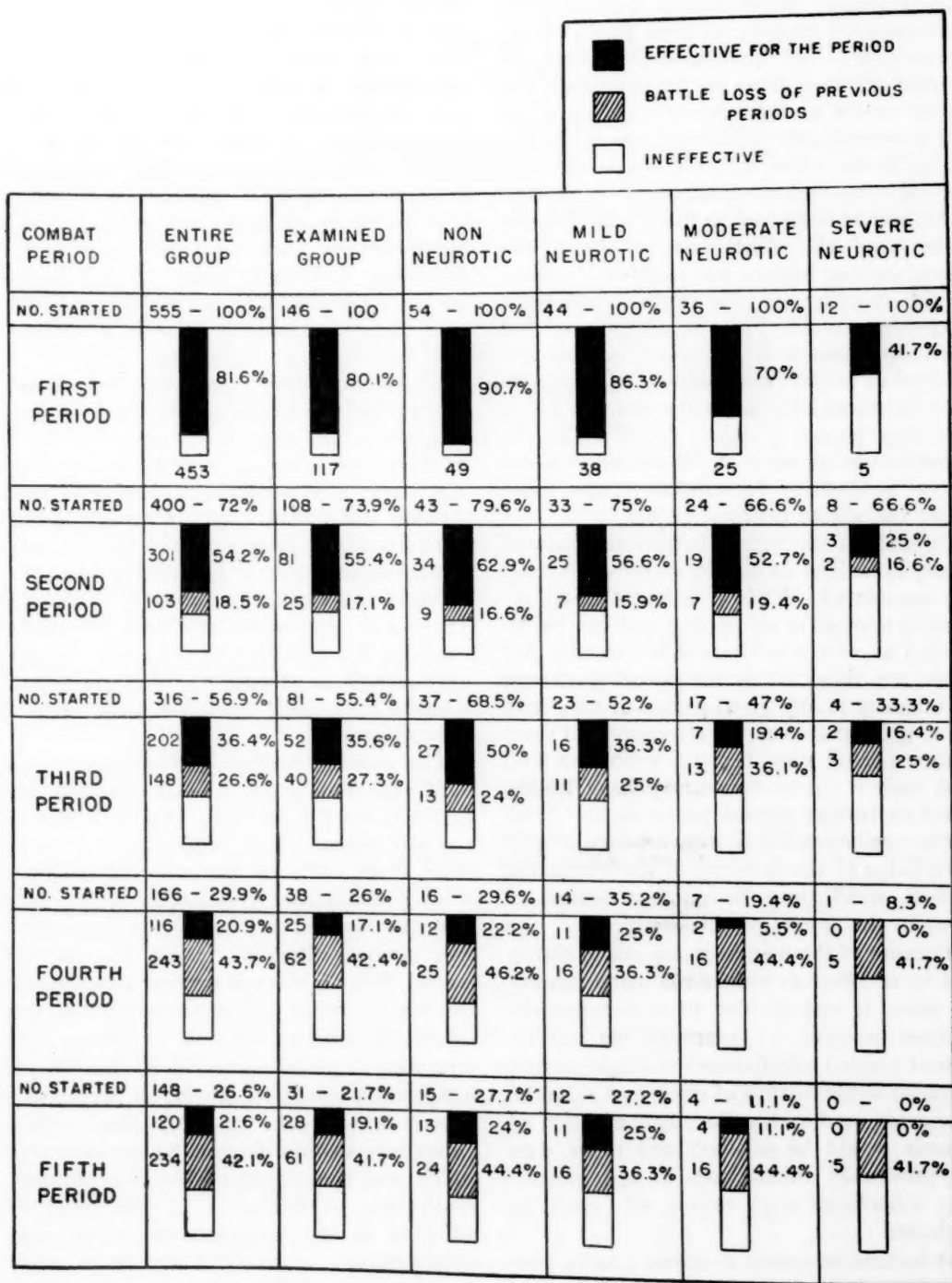


FIG. 2.—Summary of results.

possible to separate the examined subjects into 4 groups whose combat performances corresponded roughly to their predicted effectiveness. The progressive decrease in combat efficiency from the nonneurotic group to the severe neurotic group is evidence that the personality or substrate is an important factor in the individual's reaction to environmental stress even when measured by as crude a method as employed in this study. On the other hand, the effectiveness of those individuals whose history was positive for many of the so-called neurotic traits constitutes a surprising result. This would indicate that such information is overrated or that the method of arithmetical addition of such neurotic characteristics as in the neurotic index is a large source of error. Another and obvious source of error lies in the small number of subjects in the various groups, especially the severe neurotic group.

A study of this type is further complicated when variations in the intensity of combat are considered. While it is true that all offensive combat is terrorizing and can be regarded as severe environmental trauma, yet there are times when the so-called dosage or intensity at any given period of time may be so great that even the strongest and most secure person may become ineffective and that such a circumstance may have lasting effect on further combat performance. Such events are impossible to measure and provide a variation of the intensity of environmental trauma which may be another source of error in the results of this study.

Because of the many reasons stated above, and in an effort to reduce the many sources of error, it was decided to re-examine the original protocols to determine the correlation of combat effectiveness to single factors obtained in the history of examined subjects. The error produced in the single addition of criteria would be avoided and other data not previously utilized such as age, motivation, school and work record, etc., could be evaluated.

It became necessary to devise a more simplified method of scoring combat effectiveness, that could be expressed in a numerical ratio. A scoring index was established which considered only the 3 offensive combat pe-

riods. The static warfare of the 2 defensive phases caused few casualties and consequently a lesser degree of combat stress. Subjects were rated from 0 to 3, depending on the number of offensive combat periods that their performance was judged to be effective. As previously, a subject was scored as effective in any offensive combat period only if he participated throughout the period or was unable to do so because of unavoidable battle causes, such as killed, missing, or wounded. Failure to complete an offensive period for nonbattle reasons, such as sickness, injury, psychiatric illness, administrative transfer, or disciplinary causes, was scored as ineffective. Those who were unable to participate in later combat periods because of battle causes were given numerical credit up to and including the period that they were evacuated. It is admitted that many of these soldiers could have gone on further if they were not unavoidably removed, but a greater error would result if the scoring included potential and not actual combat performance. Those who were wounded in one period and returned for participation in a later period were scored as effective for the first period, with the later result dependent on subsequent effectiveness.

The average combat performance of the total examined group of 146 riflemen was found to be 1.7 periods. This ratio should not be construed as a standard for riflemen, since about 25% of the subjects remained on duty status and undoubtedly some would have participated successfully in later offensive actions, thereby raising the average scores. It is an average ratio of effectiveness for the 3 combat periods considered in this study. By utilizing the ratio of average performance (1.7) it is possible to test the validity and accuracy of scoring of the various criteria which make up the neurotic index. Other information obtained at the interview which was considered of lesser importance could also be evaluated to determine its influence in the causation of combat non-effectiveness.

The results of this analysis are illustrated in Tables I to 10.

A summary of factors from the psychiatric history which were found most detri-

TABLE 1

URBAN VS. RURAL ORIGIN

Group	Total number	% non-effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
Large cities: over 100,000 pop.,								
43.1%	63	15.8	19.4	9.5	28.5	27	1.68	- 4
Small cities: 10,000-100,000 pop.,								
27.4%	40	12.5	17.5	12.5	25	32.5	1.60	- 7
Rural: includes towns up to								
10,000 pop., 29.4%	43	9.3	6.9	23.2	30.2	30.2	1.88	+10

TABLE 2

SCHOOL AND WORK RECORD

	Total number	% non-effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
Poor school record, 20.5%	30	23.3	13.3	10	16.6	36.6	1.43	-16
Average school, 55.4%	81	7.4	16	17.2	30	28.3	1.82	+ 7
Above average, 24%	35	17.1	14.2	11.4	31.4	25.7	1.63	- 4
Erratic work record, 17.8%	26	27	15.3	11.5	11.5	30.7	1.31	-23
Steady work, 21.1%	120	10	15	14.1	31.6	29.1	1.78	+ 4.5
Poor school and work, 9.5%	14	35.7	21.4	7.1	7.1	28.5	1.00	-41
Average school, steady work,								
48%	70	5.7	17.1	17.1	32.8	27.1	1.85	+ 8
Above average school, steady								
work, 23.2%	34	17.6	14.4	8.8	32.3	26.4	1.61	- 5

TABLE 3

PARENTAL DISHARMONY IN CHILDHOOD

	Total number	% non-effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
Normal, 79.4%	116	12	12	15.5	29.3	31	1.76	+ 3.5
Separation, divorce, frequent								
quarrels, 20.5%	30	16.6	26.6	10	23.3	23.3	1.47	-13.5

TABLE 4

CHILDHOOD NEUROTIC TRAITS

Group	Total number	% non-effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
Temper tantrums, 21.5%	30	26.6	23.3	3.3	20	26.6	1.30	-23
Enuresis beyond 8 years, 18.4% ..	27	22.0	7.4	7.4	29	33.3	1.55	- 9
Abnormal fears, 26%	38	18.4	21.3	15.7	21	23.6	1.47	-13
Excessive illness—"sickly child,"								
18.7%	27	7.4	25.9	7.4	25.9	33.3	1.70	0
Nail biting, 6%	9	0	33	0	33.3	33.3	1.77	+ 4
Sleep disturbance, 4.7%	7	28.6	0	14.3	14.3	42.9	1.28	-25
Denied childhood neurotic traits,								
42.2%	66	9	10.6	16.6	33.3	20.3	1.84	+ 8

TABLE 5
SCHOOL RECORD

Group	Total number	% non-effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
1st-5th grade, 5.4%.....	8	12.5	25	12.5	0	50	1.00	-41
6th-8th grade, 20.5%.....	30	10.0	16.6	20.0	23.3	30	1.70	0
Part high school, 33.5%.....	49	10.2	16.3	16.3	28.5	28.5	1.79	+ 5
Completed high school, 27.3%....	40	12.5	7.5	12.5	37.5	30	1.85	+ 8
Part and completed college, 13%..	19	26.3	21	5.2	26.3	21	1.42	-16

TABLE 6

AGE

Group	Total number	% non-effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
18-20, inclusive, 34.9%.....	51	9.8	17.6	15.2	29.4	27.4	1.78	+ 4.5
21-25, inclusive, 14.3%.....	21	9.5	28.6	19.0	38.6	14.2	1.67	- 1.7
26-30, inclusive, 26.7%.....	39	10.2	0	18.0	30.6	41.0	1.82	+ 7
31-35, inclusive, 18.5%.....	27	11.1	25.9	7.4	29.6	25.9	1.67	- 1.7
36, 5.4%	8	62.5	0	0	0	37.5	.75	-56

TABLE 7

FAMILY NEUROTICISM (IMMEDIATE MEMBERS)

Group	Total number	% non-effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
Denied, 43.8%	64	7.8	12.5	15.6	42.1	21.8	2.01	+18
Mother nervous, father normal, 34.9%	51	13.7	15.6	11.7	21.5	37.2	1.59	- 6.5
Father nervous, mother normal, 8.9%	13	30.7	15.3	15.3	7.6	30.7	1.15	-32
Father and mother nervous, 9.5%..	14	28.5	28.5	7.1	7.1	28.5	1.00	-41
Siblings nervous, parents normal 2%	3	0	0	33.3	0	66.6	1.66	- 1
Negative family history for neuroticism and disharmony, 32.8%....	48	8.3	8.3	14.5	45.8	22.9	2.06	+21

TABLE 8

PREOCCUPATION WITH SOMATIC SYMPTOMS

Group	Total number	% non-effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
Denied, 47.2%	69	7.2	5.8	20.2	40.5	26	2.07	+22
Mild-infrequent, nondisabling, no M.D.'s or medication, 17.1%....	25	12	28	20	28	20	1.64	- 3.5
Moderate-frequent, visited M.D.'s or took medication, 25.3%.....	37	8.1	27	5.4	16.2	43.2	1.46	-14
Severe-constant, caused many periods of inefficiency in civilian life, 10.2%	15	53.3	6.6	13.3	0	26.6	.67	-60

TABLE 9

MOTIVATION

Answer to Question, "Do you think it is necessary for you to be fighting Germany over here?"

Answers	Total number	% non- effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
Good—								
"yes it's necessary"	39	18	12.8	12.8	28.2	28.2	1.61	— 5
"we had to fight"								
"we would be next"								
etc., 26.7%								
Fair—								
"don't know much about it"	71	8.4	7	18.3	33.8	32.4	1.97	+16
"they drafted me"								
"had to go"								
"just want to get this over and go home"								
etc., 48.6%								
Poor—								
"war unnecessary"	36	16.6	33	8.3	16.6	25	1.33	—22
"profiteer's war"								
"capitalistic war"								
etc., 24.6%								

TABLE 10

ADULT NERVOUSNESS

Answer to, "Do you consider yourself nervous?"

Answers	Total number	% non- effective	% effective			% battle loss 1st and 2d periods	Effective index	% deviation
			1 period	2 periods	3 periods			
Denied, 48.6%	71	8.4	9.9	16.9	39.4	25.4	1.97	+16
Mild—								
"excitable, jumpy, easily upset"	46	13	21.7	10.8	21.7	32.6	1.56	— 8
but no medication, 31.5%								
Moderate—								
"took medication" or visited M.D.'s," 17.8%	26	19.2	19.2	15.3	11.5	34.6	1.23	—27
Severe—								
history of nervous breakdown, 2%	3	66.6	0	0	0	33.3	.67	—60

mental in combat effectiveness are listed below in the order of their influence

battle is surprisingly better than they themselves or others may predict.

	Deviation from average performance %
1. History of nervous breakdown.....	-60
2. Severe preoccupation with somatic complaints.....	-60
3. 36 years of age or older.....	-56
4. Poor school and work record*.....	-41
5. Nervousness of both parents irrespective of severity.....	-41
6. Schooling of 1-5 grades.....	-41
7. Father nervous, mother normal.....	-32
8. Admitted adult nervousness which required medical aid or medication.....	-27
9. Abnormal sleep disturbance in childhood (frequent nightmares or somnambulism).....	-25
10. Erratic work record.....	-23
11. Temper difficulties in childhood†.....	-23
12. Expressed poor motivation.....	-22

* Includes (1) failure of 2 school grades or more regardless of cause and (2) poor work record, due to illness, restlessness or leaving jobs for inadequate cause.

† Temper difficulties up to 8 years which the subject remembered as being difficult to control as the cause for comment by parents.

CONCLUSIONS

1. The number of subjects studied in this series is too small to make definite claims or conclusions. Yet there are tendencies and indications which can be gained from this study which may have practical value in the military sphere.

2. The study reaffirms that the substrate or basic personality of the individual roughly correlates with the degree of his effectiveness under severe environmental stress. On the other hand, surprisingly effective combat performance was accomplished by subjects who gave a positive history for many of the so-called neurotic character traits.

3. An analysis of the correlation between single factors of the history and subsequent combat effectiveness indicates that the previous performance of the individual in school and work and his relative freedom from neurotic and somatic symptoms are better prognostic criteria than many of the historical items of the past, such as broken home in childhood, the nervousness of the mother, and childhood neurotic traits. Age is important only when 35 years is exceeded; in this connection it may be assumed that vulnerability to physical strain is the important factor.

4. Only 19 of the 146 subjects (13%) were noneffective or unable to complete successfully 30 days' offensive combat. This argues for either good prior screening at induction and during training or that the performance of men when put to the test in

5. It is felt important to emphasize that this study only pertains to combat infantrymen. The results have no value as criteria for induction, the selection of men for service duties, or even as combat assignments to the artillery or similar units. It is believed that this study does throw some light and may be of aid in the economical selection of men for the infantry or similar hazardous military duty.

SUMMARY

One hundred and forty-six replacements to rifle companies were given a brief psychiatric evaluation prior to participation in combat duty. An arbitrary method of scoring divided the men into 4 groups in an effort to predict their combat effectiveness. An adequate control group of a similar group of men who were not examined was included. The examined and control groups participated in 5 combat periods, three of the offensive type and two of a defensive nature. A careful follow-up study of the individual performance in combat was accomplished. The results indicate that a moderate degree of success can be obtained by such a method. Analysis of results also demonstrated that the previous civilian performance of the individual is the most accurate prognostic indicator of his combat effectiveness. It is suggested that such a method would be of value as an aid to the screening of men for hazardous combat duties.

A STATISTICAL STUDY OF FAMILY RELATIONSHIPS IN PSYCHONEUROSIS¹

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The effects of some aspects of family life which are considered significant in the genesis of neurosis have had little statistical verification. Although such factors as relationships with parents and siblings have received intensive study on an individual case record basis, few attempts have been made to estimate the frequency of occurrence of unfavorable conditions in the families of neurotics. The present investigation seeks to determine whether such factors would appear to have etiological significance.

A survey of the medical and psychological literature reveals relatively little information on the subject. Bolles, Metzger, and Pitts (1) investigated a group of women suffering from undifferentiated functional disorders and compared them to a control series. The cases presumably included a variety of emotional disturbances, and the results are not directly applicable to psychoneurosis. Madow and Hardy (2) reported on 211 hospitalized psychoneurotic soldiers in regard to broken and unhappy homes and compared the results to the general incidence of some of these conditions obtained from national norms. Although there is some difference between psychoneurosis as diagnosed in an army hospital and a civilian clinic, this article most nearly paralleled the present investigation. These authors found that the patient's home was broken by divorce, separation, or death of a parent before he was 9 in 20.9% of the cases. An additional 15.2% of the homes were broken before the patient was 16. Of the remaining 64.2%, with whole homes, only 34.1% were free of some kind of emotional disturbance. No other articles were discovered which dealt with the same subject.

To estimate the significance of certain

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Gratitude is expressed to Ira Iscoe and Leonore Love of the graduate school of the Psychology Department for material assistance, particularly concerning the control series and the statistics.

circumstances in family history as etiological factors in psychoneurosis, a group of patients so diagnosed in the neuropsychiatric clinic of the Student Health Service at UCLA was compared to a group of control students in the same University.

METHOD

The clinical material was furnished by 138 cases selected from 640 patients examined by the author between October 1, 1946 and May 1, 1948. Only those with an original diagnosis of psychoneurosis, confirmed by re-examination of the chart, were used. As all patients were attending the university at the time the more extreme cases are naturally rare. Those with very mild illness were not included. Therefore the group consists primarily of people with a moderate degree of disturbance. In addition, only those records were selected which contained adequate information on each of the factors to be studied. There were found to be 91 cases of anxiety state, 18 hysteria, 14 neurasthenia, 9 obsessive-compulsive neurosis, 2 reactive-depression, and 4 mixed. This closely approximates the typical relative frequencies at most other clinics except for the lower incidence of hysteria and the absence of hypochondriasis. Some previous investigators have conjectured that the percentage of hysteria is low in a relatively sophisticated population, such as this college group. That would explain the small number with this diagnosis in the series. Hypochondriasis is an infrequent condition in general and may be absent from this group by a matter of chance. Thus, examination of the relative incidence of the subdivisions of psychoneurosis does not show any artificial selection in the composition of the group.

To check the relative incidence of the factors noted in the clinical cases with the university population as a whole, a control group of students was carefully selected. To avoid uneven representation from the aca-

demographic departments subjects were chosen from classes required of all students. On the graduate level, reading proficiency in foreign languages is necessary for students in any department who expect to take a higher degree. So the older students in the control group were obtained through the graduate reading courses in French and German. On the undergraduate level, a course in American Government is required which can be taken in any one of the 4 years. By using several sections of these classes, therefore, it was possible to get the desired proportion of students from each college year. To further augment the lowest ages represented and thus make the group more completely comparable to the clinical subjects, additional students were chosen from a required freshman English class. Thus, age proportions in the 2 series were closely matched:

	Clinical	Control
Total age range.....	17-46	17-45
Medium ages	22.2	21.9

In the control group there were 65% men and 35% women. This is much the same as the proportion in the university as a whole. The sex distribution of the patients was somewhat different, there being 54% women and 46% men. We presume this is true because only the veterans have free access to another clinic, and because it is usual for a higher percentage of women to seek psychiatric help.

In order to get the desired information concerning the backgrounds of these students, a questionnaire was prepared and was first tried out on a psychology class, after which it was revised and simplified. Individual checks were next made in a series of private interviews with random subjects on the campus to determine other difficulties which might arise in answering the questionnaire. When the criteria of simplicity and clarity seemed adequately fulfilled, the various classes were visited, and the students' cooperation was readily secured. Anonymity of the blanks was stressed. Of 380 forms computed only 10 had to be discarded because of incomplete, facetious, or confusing responses.

The problem now arises as to whether the information from the two sources is com-

parable. Certain of the items studied were distinctly factual, and the response could be easily recorded as either positive or negative. An example would be separation of parents. Other conditions could be present in varying degrees, however, and responses on these necessitated a subjective evaluation on the part of the student. An example of the second type is conflict between parents who have not separated. Besides the fact that considering only marked family difficulties seemed likely to give more significant results, exclusion of mild or moderate conditions in the quantitative factors tended to standardize the criteria and lead to uniformity throughout. For the control group this was possible because the questionnaire provided for a choice between mild and marked degrees of such difficulties. They are reported here only if indicated by the subject as severe. On examining the case records of patients, factors were included when they were clearly described by the patients as of major importance. In both series, positive factors indicated that the person believed the problem to be a serious one. The results are presented as described. The attitude of the two groups is undoubtedly divergent, and this gives rise to three different interpretations. It appears as a possibility that the family situations are actually different as indicated; that they are alike but the two sets of people see them differently; or that an emotional bias in those reporting increases the apparent difference between the groups where an actual one exists. In any case, the psychoneurotics gave information on certain items differing from that of the controls, and there is some likelihood that others would follow similar patterns.

RESULTS

Tables 1 and 2 present 18 of the topics under consideration, showing relative incidence and percentages in the 2 groups. Fig. 1 gives the same information in graphic form. The first table includes 12 items wherein there is a greater occurrence in the clinical group than in the control. Table 2 lists 6 which failed to indicate any etiological connection.

Family Circumstances More Frequent in Neurosis

1. *Mental Illness in One or Both Parents.*—In the clinical group, 47.1% reported at least one mentally ill parent, as opposed to 2.7%

edly unstable, and irresponsible behavior. Psychosomatic conditions were included only if there were definite signs of nervous illness.

2. *Mental Illness in Both Parents.*—Of the patients, 7.9% described both parents as

TABLE 1
FAMILY CIRCUMSTANCES MORE FREQUENT IN NEUROSIS

Parents	No.		%		% greater in neurotic	Significance of difference *
	Neurotic N = 138	Control N = 370	Neurotic	Control		
1. Mentally ill, one or both.....	65	10	47.1	2.7	44.4	10.6
2. Both mentally ill.....	11	0	7.9	0.0	7.9	...
3. Separated	43	50	31.1	13.5	17.6	4.1
4. Unhappy together	26	21	18.8	5.6	13.2	3.8
5. Rejection by one or more.....	68	43	49.3	11.6	37.7	8.2
6. Rejection by all parent figures.....	24	5	17.4	1.4	16.0	5.0
7. Overrestriction	58	38	42.0	10.3	31.7	7.2
Siblings						
8. Mentally ill	19†	1‡	17.9	0.3	17.6	5.2
9. Conflict	29†	30‡	21.0	8.1	12.9	3.3
10. Subject's marriage disrupted.....	23§	5¶	71.9	6.9	65.0	7.7
11. Mental illness in family.....	76	14	55.1	3.8	51.3	12.8
12. Conflict in family.....	112	136	81.2	36.8	44.4	10.6

* Critical ratios (CR) are employed to determine whether differences obtained may be due to chance sampling errors or represent the presence of selective factors. Following ordinary statistical usage, critical ratios of 3 or over are considered significant. A CR of this order, obtained from a large sample, gives 99% probability against the differences being due to chance.

The formulas used in the computation for this study were obtained from Peters and Van Voorhis, *Statistical Procedures and Their Mathematical Bases*. New York: McGraw-Hill, 1940.

† Of 106 with siblings.

‡ Of 294 with siblings.

§ Of 32 marriages.

¶ Of 72 marriages.

TABLE 2
FAMILY CIRCUMSTANCES NO MORE FREQUENT IN NEUROSIS

	No.		%		% greater in		Significance of difference
	Neurotic N = 138	Control N = 370	Neurotic	Control	Neurotic	Control	
13. Death of parent.....	29	71	21.0	19.2	1.8	...	0.5
14. Parent physically ill.....	20	66	14.5	17.8	...	3.3	0.9
15. Bicultural home	32	116	23.2	31.4	...	7.2	1.7
16. Other relative in home.....	13	68	9.4	18.4	...	9.0	2.8
17. Sibling favoritism	19	72	13.8	19.4	...	5.6	1.6
18. Lack of siblings.....	32	75	23.2	20.5	2.7	...	0.1

of the controls. This shows almost the highest correlation among the items studied and strongly corroborates the previously held concept that mental illness of parents is closely associated with mental illness in their children. An attempt to evaluate the type of illness in a person not examined would be grossly unreliable. Therefore a statistical breakdown as to the type of mental illness was not attempted. The students described neurotic behavior; alcoholism; severe mental illness with hospitalization; paranoid, mark-

mentally ill. None of the control group did so. One would expect that a very small number of college students would have 2 parents with marked mental illness. It is impossible to estimate mathematically the significance of the difference because the percentage in one group is zero. The inference from these figures is that marked mental illness in both parents is of extreme importance, but is fortunately infrequent.

3. *Parents Separated (Before Child's 22d Birthday).*—Separation rather than divorce

was chosen as significant because actual breakup of the home was believed more essential than the subsequent legal procedure. There were occasional instances in which separation occurred more than once. The total figures were originally broken down into the cases in which the parents were separated before the child was 8, between 8 and 16, and from 16 to 22. Although there was a difference between the neurotics and others

to the previous item and it may be noted that a higher percentage (by 30 points) of the clinical series reported difficulty between the parents, with or without separation. When these 2 items are taken together, the significance of disturbed parent relationships becomes even more notable.

5. *Rejection by One or Both Parents.*—We considered rejection by a parent to be present when that parent failed to show ade-

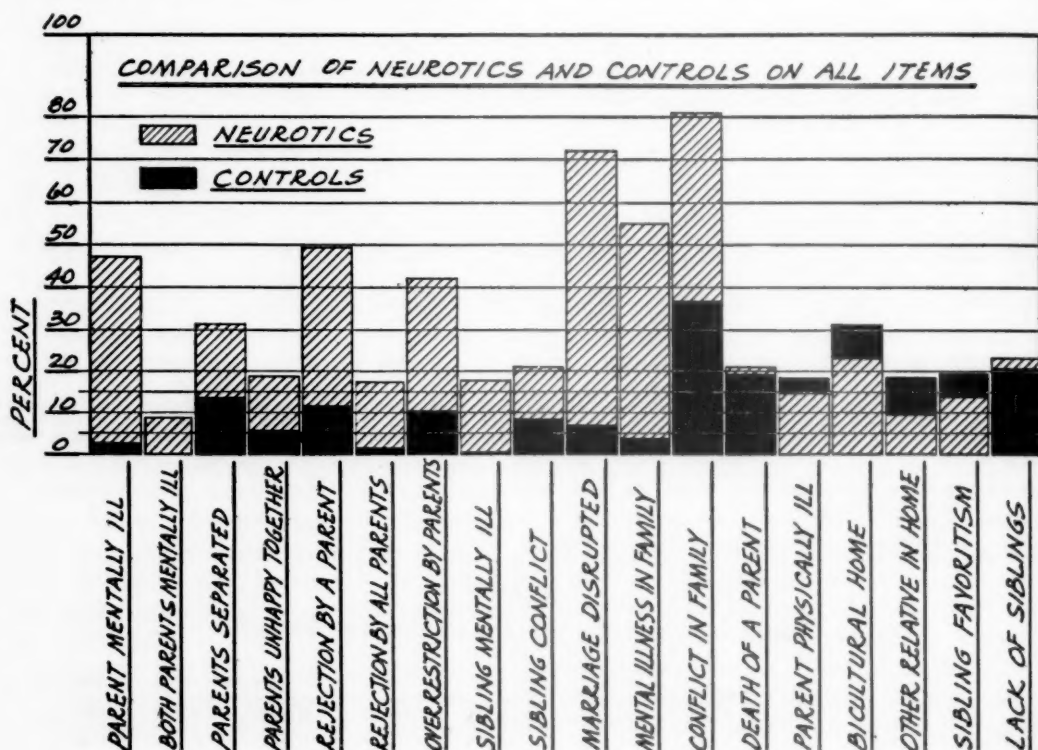


FIG. 1.—Comparison of neurotics and controls on all items.

at each age level, the comparative percentages at different ages were essentially the same in the 2 series, and nothing was added to the total figures as reported. Whereas 31.1% of the neurotics' homes were disrupted by separation, only 13.5% of the controls' were. The concurrence with neurosis was notable but not so striking as with some of the other topics.

4. *Parents Unhappy Together But Not Separated.*—Unhappiness was reported in almost one-fifth of the parents of neurotics and about one-twentieth of the other students. This should be considered in relation

quate signs of affection toward the student throughout his life. This is a more frequent factor than those above. It was reported in practically half of the patients' records and about one-ninth of the controls'. Thus the accepted belief that a parent's rejection causes emotional difficulty in the child is corroborated.

6. *Rejection by All Parent Figures.*—This item is so labeled because for a considerable number of patients there were more than 2 parent figures, i.e., parents and parent substitutes. The same is true to a lesser extent for the controls. For some patients there

were as many as 6 distinct parent figures. Certain students had also lived in orphanages. In a few of the records the parent figures became indistinct because of multiple transfers. Rejection by all parents and surrogates means essentially that the child must have grown up without substantial affection from any adult. This is recorded infrequently in the controls and in about one-sixth of the patients. The difference of 16% again indicates a significant relationship with psychoneurosis, as might be expected.

7. *Overrestriction by Parents.*—Originally overprotection, meaning restriction of the child through too much kindness, consideration, or attention, was contrasted with harsh overrestriction in which the student was held back from his normal development by openly inconsiderate demands. It was soon discovered, however, that the two were difficult to separate because selfishness or dependency on the part of the parents was often expressed in false terms of consideration. To simplify the study, overrestriction described in friendly or hostile terms was considered as one factor and was recorded as present when the student indicated that for any reason he was notably hampered from reasonable activity by his parents. Overrestriction was found in 4 times as many of the patients' accounts. The difference is sufficiently great to be of distinct clinical value.

8. *Mental Illness in Siblings.*—From those in the clinical and control groups with siblings, a higher percentage (by 17 points) of the patients reported mental illness in brothers or sisters. As was mentioned above in the discussion of mental illness in parents, it is impossible to determine accurately the type of mental illness of the family members. A sibling was considered mentally ill when it was indicated that he showed definite abnormalities in emotions or behavior. Only one of the 294 control students who had siblings reported mental illness. It seems possible that the percentage is too low, and that some students failed to record it. Also, it will be remembered that about one-half of the siblings were younger than the students consulted and that many of them were too young to have shown mental illness, which might be evident later. However, one-sixth of the

patients in this group indicated mental illness in their brothers and sisters. This appears to be materially higher than one would expect from any kind of study of an unselected group and it is the author's impression that this factor is clinically significant.

9. *Sibling Conflict.*—Here the reference is to prolonged rancor or absence of a normal degree of affection between the student reporting and at least one other member of the sibship. Disruption of this type occurs in $2\frac{1}{2}$ times as many of the neurotics' families. The difference is not as great as in most of the factors discussed but is present in a large enough proportion to be statistically reliable.

10. *Subject's Marriage Disrupted.*—The proportion married in the 2 groups is approximately identical, the difference being 1.6%. The total cases studied are noticeably less than in the rest of the series as there were 72 married people among the controls and 29 among the patients. Three of the patients were married twice. Despite the smaller numbers, the fact that almost three-fourths of the patients found their marriages disturbed seems of major importance. Of the 32 unions in the neurotics, 13 ended in separation, 5 are marked by conflict, 4 terminated in early death of the spouse, 8 continue despite mental illness in both the patient and the spouse, and 1 is influenced by prolonged invalidism of the marriage partner. Within this group, covering primarily the first few years together, the incidence of difficulties appears higher in neurotics. It can be assumed with some reason that either psychoneurotics do poorly in marital adjustment or that a marriage which is not successful increases neurotic tendencies, or both.

11. *Mental Illness in the Family.*—Item 11 is a tabulation of the families in which any member other than the one reporting shows mental illness. This is partly a composite of numbers 1, 2, and 8 above. Nervous disease was not evenly distributed in the families investigated but tended to occur more than once in a fairly high percentage of those in which it was present at all. The similarity of mental illness as a significant item in any close relative living in the same home with a person over a period of time seems to justify the additional tabulation of

its occurrence in any family member as a single item. On this point there was a higher percentage reported in the clinical series (55.1% as opposed to 3.8%). As a composite of other factors it is not surprising that the concurrence with psychoneurosis is higher than in any of the individual items from which it is drawn. In this form, as a summary factor, it is one of the two circumstances found most important of all those investigated.

12. Conflict in the Family.—All other significant items besides those dealing with mental illness can be subsumed under the general heading of family conflict. Each of the subdivisions included seems almost synonymous with some kind of conflict. Instances not involving conflict, as death of a spouse, were not included though most of those under "Subject's Marriage Disrupted" were. Others, such as sibling favoritism, do not definitely prove strong disagreement. Therefore the present item records those families in which there was personal difficulty between the parents or between the student and any member of the household. One or more of these types of trouble was evidenced in just over a third of the unselected group. This suggests that conflict, in any given instance, is not so disturbing in its effect as mental illness. Nevertheless, the difference between the groups is high (44.4%), as neurosis without family conflict was found infrequently. This is the second of the important summary factors and, with number 11, covers all family problems found coincident with neurosis.

Family Circumstances No More Frequent in Neurosis

13. Death of Parent (Before Child's 22d Birthday).—Practically the same proportion of both groups reported the death of a parent (difference, 1.8%). The identity of method in the various items of the study makes a marked contrast between the result here and the significant differences found above. These figures indicate that the loss of a parent is not a major statistical factor in the etiology of neurosis. The percentage of students orphaned is higher than one might anticipate in both groups. The reason for

this is not understood but is beyond the limits of the present study. The material is factual, easy to interpret, and should be fairly reliable. Breakdown into age groups, 0-8, 9-16, 17-21, as in the case of parents' separation, and into sex of the dead parent, yielded nothing of value beyond that of the gross figures.

14. Parent Physically Ill.—A parent was considered physically ill if the disability made an appreciable difference in his own life, and continued over a substantial period of the child's life. Undoubtedly some parents reported as physically ill suffered from psychosomatic diseases; but if the sickness was recorded or described as physical, no attempt was made to investigate the etiology. The proportions reported were slightly divergent (control series: 17.8% and patients: 14.5% positive responses). The difference is not greater than possible chance variation. Certainly this investigation demonstrates no association between parents' physical illness and nervous disease in offspring.

15. Bicultural Home.—A home was considered bicultural if one or both parents were immigrants. In almost all such instances, both parents were foreign-born. The number of homes with Negro, Indian, or other divergent cultures within this country was negligible. Less important cultural differences, such as economic or religious variations, were not considered. The student was thought of as exposed to two cultures in that the customs within the home were likely to be somewhat different from those found in the rest of his environment. Therefore, whether the student was born in the foreign country was immaterial to the investigation. These homes were slightly more frequent in the control group. The difference of 7.2% did not prove statistically reliable, and this item, with the last two, must be considered not to show any common incidence with neurosis.

16. Other Relative in Home.—This included aunts, grandparents, or other relatives who lived in the home of the subject during his childhood for more than one year. Parents, parent substitutes, and siblings were considered a part of the immediate family. Extra people in the home were listed by 18.4% of the controls and 9.4% of the

patients. This favors the controls by a higher proportion than any other unit of the study. Mathematically, the difference approaches reliability, but it is the interpretation of the author that extra members in the household and psychoneurosis are not mutually exclusive, and that probably the negative correlation has no practical value. Certainly this demonstrates a lack of coincidence between extra relatives and mental illness.

17. Sibling Favoritism.—Preference of one child over another by parents was the criterion used. There were instances in which the person reporting was favored over others, some in which the reverse was true, and a few wherein each of 2 children was favored by a different parent. A breakdown into 3 subgroups on this basis showed the proportions to be about equal between the 2 classes of subjects. The totals also were approximately the same, with 5.6% higher incidence in the controls. Sibling favoritism does not prove statistically to be a factor in the cause of neurosis.

18. Lack of Sibling.—It is interesting to note that the difference in proportion of only children is not significant (2.7%). It shows a higher percentage of patients to be only children, but it is almost the smallest variation found. The author hesitates to make any positive statement in the face of all the theory and previous study indicating that the absence of siblings engenders neurosis, but these data argue the reverse.

19. Number of Siblings.—Charting the family size showed the 2 groups to be essentially the same throughout. At no point was there any important variation between the curves. Family size joins the list of items in which no factor is found which correlates with the nervous disease here considered.

20. Relative Ages of Siblings.—We also charted the numbers of older and younger siblings in each of the series. On a chance basis, the four curves should be identical as the 2 groups have very nearly the same proportion of siblings in total. There was no major deviation of any curve from the expected values. This would indicate that the position of the child in the sibship as regards age is not as important as many other factors. An attempt to determine the significance of the subjects being the first of that

sex in the sibship produced figures which were too small for reliability.

DISCUSSION

Mental illness and conflict in the family emerge as the two main concepts. At least one of these is found in all items which correlate with psychoneurosis. Every factor which does not indicate mental illness or conflict fails to show correlation. There was no particular attempt, when the experiment was set up, to study these considerations specifically. Rather, all parts of family history were investigated which occurred to the author as likely to yield valuable results. It was only after compilation of the data that the generalizations became apparent. Certainly it is consistent with psychiatric thought that conflict and mental illness should be associated with psychoneurosis. It is perhaps even more interesting, and certainly more surprising, that the other items should be found so seldom in the patients. For instance, anyone familiar with psychiatric literature has seen many comments on the psychodynamic importance of being an only child. Although this is not a study of all kinds of emotional difficulties, at least this investigation does not suggest that being an only child results frequently in psychoneurosis. The distinct difference between the broken homes caused by separation and those due to the death of a parent is also worthy of note. It would be inferred that separation is associated with a good deal more disturbance than the resulting absence of a parent.

In the clinical series, difficulties were more likely to be multiple. Of those in the 2 groups who reported at least one instance of conflict or mental disease in the family, the patients averaged slightly over twice as many per family (3.5 problems each, as compared to 1.6 for the controls).

SUMMARY AND CONCLUSIONS

On the basis of family histories, a series of psychoneurotic patients in a university psychiatric clinic was compared to a group of their contemporaries not selected as to mental disease. Minor illnesses and family difficulties were disregarded throughout. The

results indicated that 2 concepts (intrafamily conflict and mental disease in some member of the family group) are important concomitants of neurosis. The following conclusions were suggested by the data. Mental illness in parents, separation of parents or lack of adjustment between them, rejection by parent figures, parental overrestriction, mental illness in siblings or disturbed relationships between them, and disruption of the subject's marriage are indicated considerably more frequently in those students suffering from psychoneurosis than in the university population at large. Death, prolonged physical illness or foreign birth of parents, extra relatives living in the home,

sibling favoritism, lack of siblings, and factors relating to size of sibship or relative ages of siblings are found no more often in the neurotics than in the others. The margin of difference between the two sets of items is great enough to suggest that the same conclusions may be true for psychoneurotic people in general.

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A STATISTICAL STUDY OF PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS

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The number of drug addicts is unknown, and even a reasonable estimate is almost impossible to arrive at. The number of hospital admissions for the treatment of drug addiction is not an adequate substitute, for the reason that such admissions undoubtedly form a small and unknown proportion of the true total of addicts. Admission to hospitals is in this respect a very selective procedure. Furthermore, there is no way at present of determining the number of addicts who are treated privately or who receive no treatment at all. However if the total of drug addicts is unknown, there is more definite information with respect to those who develop a psychosis due to a drug or other exogenous poison. Just as highly useful information with respect to the alcoholic psychoses is obtained from the statistics of admissions with such psychoses to hospitals for the treatment of mental disease, so we may obtain similar data with respect to the drug psychoses. Statistics of first admissions with drug psychoses to the New York civil state hospitals are available since 1909 and are summarized in Table 1.

We may first note the small number of such annual first admissions. Only once did they exceed 40. In most cases they were less than 30. Thus, they represented very small proportions of the total annual first admissions, and never reached as high as 1% of the total. They ranged from a minimum of 0.11% of total first admissions in 1926 to a maximum of only 0.57% in 1914. In general, the annual variations are of little significance because of the random fluctuations resulting from the small number of first admissions with such psychoses. Considering the number of first admissions per 100,000 general population, the conclusion is the same: the annual rates are exceedingly small and exceed 0.30 per 100,000 population only twice since 1909. Despite the small numbers involved, it is apparent

that there is a sex difference in first admissions with drug psychoses. The annual number of female first admissions with such psychoses is almost always in excess of that of males, and the rate per 100,000 population is higher among females.

Table 1 was based upon first admissions to the New York civil state hospitals with psychoses due to drugs. Beginning with April 1, 1943 it is possible to broaden the field of inquiry. In addition to the civil state hospitals, patients with psychoses due to drugs, including also those due to other exogenous poisons, may be admitted to the state hospitals for the criminal insane, and to the licensed hospitals for mental disease. Table 2 shows that there were 166 first admissions with such psychoses to *all* hospitals for mental disease in New York State during the 4 years from April 1, 1943 to March 31, 1947. Of this total, 121 were admitted to the civil state hospitals, and 44 to the licensed institutions. There does not appear to be much selection in this respect, the admissions to the civil state hospitals constituting only 0.24% of total first admissions, and the admissions to the licensed institutions constituting only 0.29% of the total first admissions to the latter group of institutions.

Of the 166 first admissions with psychoses due to drugs or other exogenous poisons to all mental hospitals in New York State during the fiscal years 1944-1947, inclusive, 4, or 2.4%, were due to metals; 6, or 3.6%, to a gas; 39, or 23.5%, to opium or its derivatives; and 117, or 70.4%, to all other drugs. Psychoses due to metals occurred only among males, and are probably associated with occupational factors. There is a higher incidence of psychoses due to opium and its derivatives among females. The largest total of first admissions falls into the fourth category, which includes such drugs as cocaine, bromides, chloral, acetanilide, phenacetin, sulphone, etc.

An earlier and extensive investigation on

¹ New York State Department of Mental Hygiene.

TABLE 1

FIRST ADMISSIONS WITH DRUG PSYCHOSES TO THE NEW YORK CIVIL STATE HOSPITAL, 1909-1947

Fiscal year	Number			Per cent of total first admissions			Number per 100,000 of general population		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
1909.....	8	16	24	0.29	0.66	0.46	0.18	0.36	0.27
1910.....	10	12	22	0.34	0.46	0.40	0.22	0.27	0.24
1911.....	13	8	21	0.43	0.30	0.37	0.28	0.17	0.23
1912.....	7	11	18	0.23	0.40	0.31	0.15	0.24	0.19
1913.....	10	11	21	0.31	0.38	0.35	0.21	0.23	0.22
1914.....	19	17	36	0.57	0.58	0.57	0.40	0.36	0.38
1915.....	12	12	24	0.37	0.41	0.39	0.25	0.25	0.25
1916*.....	6	8	14	0.23	0.34	0.29	0.16	0.22	0.19
1917.....	3	5	8	0.08	0.15	0.12	0.06	0.10	0.08
1918.....	7	12	19	0.20	0.37	0.28	0.14	0.24	0.19
1919.....	5	11	16	0.14	0.34	0.24	0.10	0.22	0.16
1920.....	3	8	11	0.09	0.25	0.17	0.06	0.15	0.11
1921.....	10	12	22	0.27	0.37	0.32	0.19	0.23	0.21
1922.....	15	11	26	0.40	0.34	0.37	0.28	0.21	0.24
1923.....	14	8	22	0.39	0.24	0.32	0.26	0.15	0.20
1924.....	9	10	19	0.29	0.36	0.33	0.16	0.18	0.17
1925.....	11	12	23	0.28	0.34	0.31	0.20	0.22	0.21
1926.....	2	6	8	0.05	0.18	0.11	0.04	0.11	0.07
1927.....	9	13	22	0.21	0.36	0.28	0.16	0.22	0.19
1928.....	13	13	26	0.28	0.33	0.30	0.22	0.22	0.22
1929.....	4	10	14	0.19	0.26	0.22	0.07	0.16	0.11
1930.....	11	19	30	0.22	0.47	0.33	0.17	0.30	0.24
1931.....	10	7	17	0.20	0.17	0.18	0.16	0.11	0.13
1932.....	7	15	22	0.13	0.33	0.22	0.11	0.24	0.17
1933.....	8	13	21	0.13	0.26	0.19	0.12	0.20	0.16
1934.....	9	15	24	0.14	0.29	0.21	0.14	0.23	0.19
1935.....	9	21	30	0.14	0.39	0.26	0.14	0.32	0.23
1936.....	13	22	35	0.20	0.39	0.29	0.20	0.33	0.27
1937.....	12	26	38	0.18	0.45	0.30	0.18	0.39	0.29
1938.....	4	22	26	0.06	0.37	0.21	0.06	0.33	0.20
1939.....	18	20	38	0.26	0.33	0.29	0.27	0.30	0.28
1940.....	9	18	27	0.13	0.29	0.21	0.13	0.27	0.20
1941.....	10	12	22	0.14	0.19	0.16	0.15	0.18	0.16
1942.....	10	19	29	0.14	0.28	0.21	0.15	0.28	0.21
1943*.....	6	7	13	0.12	0.15	0.14	0.12	0.13	0.12
1944.....	6	18	24	0.10	0.26	0.18	0.09	0.26	0.17
1945.....	7	17	24	0.12	0.26	0.19	0.10	0.24	0.17
1946.....	23	22	45	0.38	0.33	0.35	0.33	0.31	0.32
1947.....	13	13	26	0.20	0.19	0.19	0.19	0.18	0.18

* First admissions were for 9 months owing to change in fiscal year; rates estimated for 12 months.

TABLE 2

FIRST ADMISSIONS WITH PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS TO THE STATE AND LICENSED HOSPITALS FOR THE MENTALLY ILL IN NEW YORK STATE, FISCAL YEARS 1944-1947, INCLUSIVE

	Number of first admissions			First admissions with drug psychoses, etc.					
	Males	Females	Total	Number			Per cent of total first admissions		
				Males	Females	Total	Males	Females	Total
Civil state hospitals.....	24,333	27,150	51,483	52	69	121	0.21	0.25	0.24
Syracuse Psychopathic ..	988	792	1,780	..	..	...	...	...	...
State hospitals for criminal insane	480	44	524	1	..	1	0.21	...	0.19
Licensed hospitals	9,159	6,175	15,334	26	18	44	0.28	0.29	0.29
Total	34,960	34,161	69,121	79	87	166	0.23	0.25	0.24

similar lines was conducted in Massachusetts, based upon admissions to the Massachusetts state hospitals from 1917 to 1937 (1). This study is in agreement with the present study, in showing a very low incidence of drug psychoses, averaging only 0.5% of all admissions during the period. The diagnostic groups appeared in the same order as in New York State, the least frequent being those due to metals and the most frequent being those due to other drugs (2).

to March 31, 1947. The punched cards were sorted so as to pick out all those representing a diagnosis of psychosis due to a drug or other exogenous poison. These provided a total of 215 first admissions, of which 105 were males and 110 females.

Age

The average age of first admissions with psychoses due to drugs, etc.,² was 46.3

TABLE 3

FIRST ADMISSIONS WITH PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS TO THE STATE AND LICENSED HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, CLASSIFIED ACCORDING TO AGE AT ADMISSION

Age (years)	Number			Per cent		
	Males	Females	Total	Males	Females	Total
Under 10.....	1	..	1	1.0	...	0.4
10-14.....	..	1	1	...	0.9	0.4
15-19.....	3	..	3	2.9	...	1.4
20-24.....	4	1	5	3.8	0.9	2.3
25-29.....	7	5	12	6.7	4.5	5.6
30-34.....	3	7	10	2.9	6.4	4.7
35-39.....	11	17	28	10.4	15.4	13.0
40-44.....	21	19	40	20.0	17.3	18.6
45-49.....	17	20	37	16.2	18.2	17.2
50-54.....	14	13	27	13.3	11.8	12.6
55-59.....	10	11	21	9.5	10.0	9.8
60-64.....	7	10	17	6.7	9.1	7.9
65-69.....	5	4	9	4.8	3.6	4.2
70-74.....	1	1	2	1.0	0.9	0.9
75-79.....	..	1	1	...	0.9	0.4
80-84.....	1	..	1	1.0	...	0.4
Total.....	105	110	215	100.0	100.0	100.0
Average age (years).....	45.7 ± 0.87	46.9 ± 0.73	46.3 ± 0.57			
Standard deviation (years).....	13.2 ± 0.61	11.4 ± 0.52	12.3 ± 0.46			

CHARACTERISTICS OF FIRST ADMISSIONS WITH PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS

In selecting the statistics of first admissions, use was made of the new statistical system inaugurated by the New York State Department of Mental Hygiene as of April 1, 1943. Under this system, a statistical record in the form of a punched card was prepared for every patient on the books of the state and licensed hospitals for mental disease in New York State on April 1, 1943, and similar cards were prepared for all patients admitted since that date. The following analyses are based upon first admissions who were on the books on April 1, 1943 and those who were subsequently admitted up

years. The average ages of males and females were 45.7 and 46.9 years, respectively. The females were older on the average by 1.2 years, but this is not significant in comparison with its probable error (1.1). Male first admissions were concentrated between the age groups 35 to 39 and 50 to 54, this interval including 63 of the 105 first admissions, or 60.0%. Of the 110 female first admissions, 69, or 62.7%, were included within the same limits. Drug psychoses are therefore associated largely with the middle years.

Male first admissions with alcoholic psychoses had an average age of 47.9 years.

² This abbreviation will be used instead of psychoses due to drugs and other exogenous poisons.

Females had an average age of 44.8 years. Neither of these differed significantly from the average age of first admissions with drug psychoses, etc. It appears, therefore, that both groups of psychoses are drawn from the same age intervals.

In a similar study of first admissions with drug psychoses, etc., to the Massachusetts state hospitals, it was shown that males had an average age of 43.4 years, and females an average of 42.4 years(3). First admissions with drug psychoses were older in New York than in Massachusetts, though the differences are not statistically significant because of the small totals involved.

There is also an important sex difference. Among male first admissions, exclusive of those with alcoholic psychoses, 14.2% were intemperate, compared with 26.7% of the male first admissions with drug psychoses, etc., the latter being in excess by 88%. Female first admissions, exclusive of those with alcoholic psychoses, included only 3.0%, of intemperate users of alcohol, compared with 21.8% among female first admissions with drug psychoses, etc., the latter being in excess by over 600%. It is apparent, therefore, that intemperance is more closely associated with drug psychoses among females than among males.

TABLE 4

FIRST ADMISSIONS WITH PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS TO THE STATE AND LICENSED HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, CLASSIFIED ACCORDING TO USE OF ALCOHOL

Use of alcohol	Number			Per cent		
	Males	Females	Total	Males	Females	Total
Abstinent	29	49	78	27.6	44.5	36.3
Moderate	45	31	76	42.9	28.2	35.3
Intemperate	28	24	52	26.7	21.8	24.2
Unascertained	3	6	9	2.9	5.4	4.2
Total	105	110	215	100.0	100.0	100.0

Use of Alcohol

Of the 215 first admissions with psychoses due to drugs, etc., 78, or 36.3%, were abstinent with respect to the use of alcohol, and 76, or 35.3%, drank moderately. Those classified as intemperate totalled 52, or 24.2%. Of all first admissions to the civil state hospitals, excluding those with alcoholic psychoses, only 8.1% were intemperate. It is therefore evident that the rate of intemperance is much higher among the drug group than among the general run of first admissions. In fact, of the first admissions with manic-depressive psychoses, only 7.6% were intemperate. Of first admissions with dementia præcox, only 8.3% were intemperate. It is known that intemperance is highly prevalent among general paretics, yet of the latter group only 15.2% were intemperate, compared with 24.2% of those in the group with drug psychoses, etc. It is evident, therefore, that there is an association between the use of drugs and the concomitant use of alcohol to an intemperate degree.

The same excess of intemperance among first admissions with drug psychoses was noted in the Massachusetts study(4). Rates of intemperance were also higher in this state than in New York. Thus, of the male first admissions with drug psychoses in the Massachusetts study, 50.4% were intemperate, compared with only 26.7% of the group in New York State. Among females, the corresponding percentages were 25.5 and 21.8%, respectively. A commonly accepted explanation of the disparity is the unusually high prevalence of intemperance in Boston, from which most of the Massachusetts admissions are received.

Marital Status

Of the 215 first admissions with drug psychoses, etc., 61, or 28.4%, were single; 94, or 43.7%, married; 30, or 14.0%, widowed; 21, or 9.8%, separated; and 9, or 4.2%, divorced. There were higher proportions of unmarried and separated among the males. Females had a significantly higher

percentage of widowed. The percentages of those who were separated or divorced were on par with those found among general paretics and alcoholic psychotics, and all 3 groups had percentages greatly in excess of those occurring among all first admissions.

According to the census of April 1, 1940, 27.6% of the male population of New York State aged 20 or over were single; 62.7% were married; 4.8%, widowed; 4.2% separated; and 0.7%, divorced(5). Compared with the corresponding percentages among the male first admissions with drug psychoses, it is evident that all except the married group contributed more than their

of common school education, and 76, or 35.3%, had been to high school. Twenty-three, or 10.7%, had been to college.

Compared to all first admissions, those with drug psychoses include much higher percentages with high school or college education. Thus, only 22.6% of all first admissions to the civil state hospitals had been to high school, compared to 35.3% of the drug group. The contrast was even greater with respect to college education (4.8% as against 10.7%).

First admissions with general paresis included 18.7% with a high school education, and 2.6% with a college education. First

TABLE 5

FIRST ADMISSIONS WITH PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS TO THE STATE AND LICENSED HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, CLASSIFIED ACCORDING TO MARITAL STATUS

Marital status	Number			Per cent		
	Males	Females	Total	Males	Females	Total
Single	36	25	61	34.3	22.7	28.4
Married	44	50	94	41.9	45.4	43.7
Widowed	8	22	30	7.6	20.0	14.0
Separated	13	8	21	12.4	7.3	9.8
Divorced	4	5	9	3.8	4.5	4.2
Total	105	110	215	100.0	100.0	100.0

quotas. The latter produced only 67% of its quota, whereas the single were in excess by 24%. The excess was especially marked among the separated and divorced.

The female population of New York State, aged 20 or over on April 1, 1940, was distributed as follows according to marital status: single, 21.8%; married, 60.0%; widowed, 12.8%; separated, 4.3%; divorced, 1.1% (5). Compared with female first admissions with drug psychoses, there was an excess of the latter among all the marital groups, except the married. The latter furnished only 76% of its quota. The unmarried females were only slightly in excess of their quota, but the widowed, separated, and divorced were in significant excess.

Degree of Education

Of the 215 first admissions with drug psychoses, 4, or 1.9%, were illiterate. Six, or 2.8%, could either read, or read and write. A total of 94, or 43.7%, had some degree

admissions with alcoholic psychoses had 18.8% with a high school education, and 5.4% with a college education. Both groups are inferior to those with drug psychoses, who included 35.3% with a high school education, and 10.7% with a college education. First admissions with manic-depressive psychoses and dementia præcox have higher educational attainments than either the general paretics or alcoholics, and approximate closely to the group with drug psychoses in this respect.

Of the general male population of New York State aged 20 years or over on April 1, 1940, 4.8% had no education, 51.6% had attended common school; 29.5% had attended high school; and 11.8% had some degree of college education(6). If we assume that patients classified as illiterate, reads only, or reads and writes are equivalent to the census group of "without education," then the corresponding percentages for the male first admissions with drug

psychoses were 3.9, 51.4, 23.8, and 13.3, respectively.

Among the general female population aged 20 or over on April 1, 1940, the percentages with the several degrees of education were as follows: none, 5.1; common school, 49.9; high school, 34.5; college, 8.4(6). Among the female first admissions with drug psy-

possible that in this respect the latter are a more or less random sample of the general population.

Environment

Of the 215 first admissions with drug psychoses, etc., 189, or 87.9%, were from

TABLE 6

FIRST ADMISSIONS WITH PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS TO THE STATE AND LICENSED HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, CLASSIFIED ACCORDING TO DEGREE OF EDUCATION

Degree of education	Number			Per cent		
	Males	Females	Total	Males	Females	Total
Illiterate	1	3	4	1.0	2.7	1.9
Reads	1	1	2	1.0	0.9	0.9
Reads and writes.....	2	2	4	1.9	1.8	1.9
Common school	54	40	94	51.4	36.4	43.7
High school	25	51	76	23.8	46.4	35.3
College	14	9	23	13.3	8.2	10.7
Unascertained	8	4	12	7.6	3.6	5.6
Total	105	110	215	100.0	100.0	100.0

TABLE 7

FIRST ADMISSIONS WITH PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS TO THE STATE AND LICENSED HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, CLASSIFIED ACCORDING TO ENVIRONMENT

Environment	Number			Per cent		
	Males	Females	Total	Males	Females	Total
Urban	90	99	189	85.7	90.0	87.9
Rural	15	11	26	14.3	10.0	12.1
Rural, farm .....	..	..	...	...	...	...
Rural, nonfarm	15	11	26	14.3	10.0	12.1
Total	105	110	215	100.0	100.0	100.0

choses the corresponding percentages were 5.4, 36.4, 46.4, and 8.2, respectively.

In the case of the males, there do not appear to be any important differences between the general population and the first admissions with drug psychoses with respect to degree of education. The female patients, however, show a much smaller percentage with a common school education and a higher percentage with a high school education.

In previous studies, as for example with respect to the alcoholic psychoses, it was shown that the general population had a markedly higher level of education than the psychotic group, indicative of correlation between formal education and rates of first admission. No such differences exist in connection with the drug psychoses, and it is

an urban environment; and 26, or 12.1%, were from a rural environment. All of the latter belonged to the rural nonfarm population. Of the general population of New York State, aged 20 or over on April 1, 1940, 83.5% were urban, and 16.5% were rural (7). The urban population exceeded its quota by 5%. The rural population contributed only 73% of its quota. It is evident, therefore, that the drug psychoses are more prevalent in urban than rural areas. Among the latter, the drug psychoses are confined to the nonfarm population, who are closer in habits of life to the urban population than to the rural population. A similar distribution was found among first admissions with general paresis and alcoholic psychoses.

Race and Nativity

Of the 215 first admissions with drug psychoses, etc., 197, or 91.6%, were white, and 18, or 8.4%, Negro. Of the general population of New York State aged 20 or over on April 1, 1940, 95.6% were white, and 4.2% were Negro(8). The white population contributed 96% of its quota, whereas Negroes exceeded their quota by 100%.

Of the 105 male first admissions, 92, or 87.6%, were white, and 13, or 12.4%, were

Table 8 also compares the native whites with the foreign-born whites. The former included 162, or 75.3%, of all the first admissions with drug psychoses. The latter included 34, or 15.8%. Native and foreign-born whites included 66.6 and 29.0%, respectively, of the total population of New York State aged 20 or over on April 1, 1940(8). Thus, the natives exceeded their quota by 13%, whereas the foreign-born contributed only 54% of their quota. Foreign

TABLE 8

FIRST ADMISSIONS WITH PSYCHOSES DUE TO DRUGS OR OTHER EXOGENOUS POISONS TO THE STATE AND LICENSED HOSPITALS FOR MENTAL DISEASE IN NEW YORK STATE, CLASSIFIED ACCORDING TO RACE AND NATIVITY

Race and nativity	Number			Per cent		
	Males	Females	Total	Males	Females	Total
White	92	105	197	87.6	95.5	91.6
Native	74	88	162	70.4	80.0	75.3
Foreign	17	17	34	16.2	15.5	15.8
Unascertained	1	...	1	1.0	...	0.4
Negro	13	5	18	12.4	4.5	8.4
Total	105	110	215	100.0	100.0	100.0

Negroes. The corresponding percentages for the general male population, aged 20 or over, were 95.8 and 3.8, respectively(8). Negro males exceeded their quota by 226%, whereas white males reached only 90% of their quota.

In the case of the females, 95.5% of the first admissions were white, and 4.5%, Negroes. The corresponding percentages among the general female population, aged 20 or over, were 95.3 and 4.6, respectively(8). The females, whether white or Negro, met their quotas almost exactly.

The excess of drug psychoses among Negroes was due entirely to the males. This is significant in view of the fact that in general the drug psychoses are more prevalent among females. Possibly there is something in the social environment of Negroes in New York City which tends to reduce the amount of drug addiction among females of a degree resulting in a psychosis. In just meeting their quota Negro females differed significantly from their relative frequency with respect to the alcoholic psychoses and general paresis. Negro females contributed far in excess of their quota with respect to the latter groups of mental disorders.

males and foreign females both included only little more than half their expected quotas. It appears that the drug psychoses are less frequent among the foreign-born. This may be correlated with economic status. There is a suggestion of a higher percentage of such psychoses among the more affluent classes. Since the foreign-born, on the whole, rate lower economically than the native, this may have a relation to the relative frequency of such psychoses.

In accordance with the racial classification employed by the U. S. Immigration Service, the outstanding groups among the 197 white first admissions with drug psychoses, etc., were as follows: English, 13, or 6.6%; German, 16 or 8.1%; Hebrew, 24, or 12.2%; Irish, 24, or 12.2%; and Italian, 9, or 4.6%. Unfortunately, it is impossible to compute rates, owing to the absence of a similar classification of the general population. Thus, the significance of the relatively large numbers classified as English, German, Hebrew, and Irish cannot be assessed. In the case of the Hebrews, it is permissible, however, to contrast the relatively large number admitted with drug psychoses with the extraordinary low prevalence of the alcoholic

psychoses, as shown in previous studies. There is something in the Jewish social traditions which strongly discourages the excessive use of alcohol, but there appears to be a counterdrive toward the use of drugs.

The variation in rates shown by the several racial and nativity groups is probably associated with their different social habits and traditions.

SUMMARY

1. Psychoses due to drugs or other exogenous poisons represent very few first admissions to hospitals for mental disease in New York State. Such psychoses average only about 0.2% of all first admissions.

2. Despite the small number of such first admissions, it is evident, nevertheless, that psychoses due to drugs, etc., are more frequent among females than among males.

3. Very few cases of such psychoses arise from poisoning due to a metal or to a gas. The largest single category is probably that arising from the use of opium or its derivatives.

4. The average age of first admissions with psychoses due to drugs, etc., is approximately 46 years. Females averaged about a year older than males. Approximately 60.0% of such admissions are found within ages 35 to 54.

5. There was a high percentage of intemperate users of alcohol among first admissions due to drugs, etc.

6. When classified as to marital status, all first admissions with drug psychoses, etc., except the married group, were in relative excess of the numbers expected when compared with similar marital groups in the general population. The excess was especially marked among those who were separated or divorced.

7. When compared with the general population, first admissions with drug psychoses, etc., did not show any significant differences with respect to degree of education. However, they included higher percentages with a high school or college education than is found among all first admissions.

8. Psychoses due to drugs, etc., occurred more frequently among the urban than among the rural population. With respect to the latter, they were confined to the nonfarm group.

9. Negroes had a higher rate of first admissions with drug psychoses, etc., than whites. This was due to a great excess among Negro males. Negro females on the contrary contributed less than their quota of such first admissions.

10. Foreign-born whites had less than their quota of first admissions with psychoses due to drugs, etc. Native whites had an excess of such admissions.

11. There is a suggestion of a relatively high rate of first admissions with psychoses due to drugs, etc., among Jews, in contrast with unusually low rates of first admissions with alcoholic psychoses among them.

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COMPULSION NEUROSIS WITH CACHEXIA (ANOREXIA NERVOSA)

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HISTORICAL

It has long been known that disorders of appetite may originate in the psyche. Classical literature is replete with examples of hyperorexia and anorexia and their relation to mental status or personality type. Medical literature, though lagging behind lay expression, offered its first report on the topic in 1694 when Morton(1) referred to "consumption of mental origin." However, it remained for Sir William W. Gull(2), in an address before the British Medical Association at Oxford in 1868 to mention "young women emaciated to the last degree through hysteric aepsia." Slightly later, the same author(3) presented his classic description of "anorexia nervosa" and since then little has been added to his admirable and astute observations. He described "a peculiar form of disease occurring mostly in young women," characterized by repugnance to food, extreme emaciation, amenorrhea, and personality changes. About the same time, Lasègue(4) gave an account of the illness under the title "hysterical anorexia" but Gull's term, anorexia nervosa, was more widely accepted and has remained so until the present day. More dramatically perhaps than any other clinical entity this disease demonstrates the inseparability of mind and body. It vividly illustrates the effect of emotions on bodily functions and, conversely, the result of a malfunctioning body on the personality. Accordingly, the question early arose as to how the ailment originated. From the time of Gull until 1914 it was generally accepted that the primary lesion was in the psychological rather than in the physiological structure. However, when Simmonds(5) reported the syndrome of hypophyseal cachexia, the possibility of destruction of the pituitary gland as an etiologic factor was introduced. Confusion followed, and for a time all extreme cases of emaciation, both recovered and fatal, were ascribed to a pituitary dysfunction. But,

with more careful study and the accumulation of autopsy material, it became apparent that Simmonds' disease presented many distinguishing characteristics clinically as well as a regularly present destruction of the anterior lobe of the hypophysis not found in anorexia nervosa. As a result, the pendulum has once again swung in the direction of a psychogenic origin for the latter. Although there is some support for the view that the disease is a functional dyspituitarism(6) and an infrequent recent proposal that somatic factors contribute to its cause(7), prevailing opinion holds that anorexia nervosa is a graphic illustration of the influence of emotions on bodily functions, primarily a psychologic and secondarily a physiologic disturbance.

If this contemporary conclusion is correct, what are the powerful psychodynamic forces that lead to virtual starvation, extreme emaciation, and sometimes death? It is inconceivable that a well-integrated personality could foster such unusual behavior. What, then, is the nature of the personality disorder and, more specifically, in what nosological category of present-day psychiatry should the ailment be placed? As indicated by the title of this paper, it is the author's opinion that anorexia nervosa is fundamentally a compulsion neurosis, with cachexia as a leading symptom.

Validating facts are difficult to present in any psychiatric problem, and support of the above interpretation with conclusive data is no exception. The most frequent method employed is to offer a group of typical clinical histories; however, no individual histories are being submitted in this report although the study is based on 10 cases. Such inclusions are laborious and ill-rewarding since it can always be said that the histories are prepared from a prejudiced opinion. Consequently, the 10 cases will be described collectively and then, from this formulation, it will be demonstrated that anorexia nervosa can appropriately be termed a compulsion neurosis with cachexia.

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CLINICAL PICTURE

The term, clinical picture, does not refer to a description of anorexia nervosa as a fully developed disease, such as may be found in any one of many authoritative text books of medicine or psychiatry, but rather to a description of the patient and her personality. Such an approach requires that both a physical and a psychological profile be drawn.

A. PHYSICAL PROFILE

The patient, usually an unmarried female² between the ages of 18 and 25, is brought to the physician by her parents who are troubled by her emaciation and inadequate eating. Upon examination cachexia is found to be extreme. The skin is dry, frequently covered with excess hair (hypertrichosis) and occasionally scaling. The extremities are cold and blue-white. Amenorrhea and constipation are regularly present as are slow pulse (50-65), low body temperature (95-98 F) and hypotension (blood pressure ranging from 85 to 95 systolic and 50 to 60 diastolic). Cheilitis, glossy tongue, gingivitis, and carious teeth are frequently seen. Aside from low basal metabolic rate (-20% to -40%), electroencephalogram that records abnormal waves,³ vaginal smear of the atrophic type(8), and flat glucose tolerance curve, all laboratory studies are within normal limits. These include red, white, and differential blood counts, urinalysis, Wassermann, blood chemical studies (including fasting blood sugar and blood cholesterol) and x-rays of the skull. In spite of her obvious general ill health, the patient is remarkably active, demonstrating

physical energy in a way that is entirely out of keeping with her marked state of malnutrition. Family and friends assert that she never seems to tire, and the physician notes that she is virtually anaesthetic to feelings of fatigue.

Only one disorder, Simmonds' disease, presents a similar clinical picture and this can readily be differentiated. Although it likewise occurs chiefly in women, it is more frequently seen in middle age and is usually precipitated by a physical illness. Weight loss at first is not great but is dramatic and profound in later stages. Premature aging, wrinkling of the skin, deciduation of pubic and axillary hair, loss of sexual desire (previously present), and atrophy of the sexual organs are prominent. Amenorrhea is present in only about one-half of the cases. Lassitude and weakness are conspicuous. Low basal metabolic rate, vaginal smear of atrophic type, and disturbed glucose tolerance curve are present.

B. PSYCHOLOGICAL PROFILE

A psychological profile of a disease is only of value if drawn from both horizontal and cross-sectional perspectives, the former as it depicts the development of the ailment and the latter as it pictures the disorder at any stage of its evolution. For the present inquiry, a total horizontal and a single cross-sectional study will be made. The horizontal profile will illustrate the developing personality of the patient with anorexia nervosa and the cross-sectional profile the personality in its definitive form.

1. In horizontal section

The child who later develops anorexia nervosa is a good little girl. More likely than not, she is the product of unstable parents and has collaterals in which neurosis or psychosis is frequently encountered. Usually the mother is too wrapped up in the child. The youngster has difficulty fitting into the family constellation and does not make friends easily. She is described by her parents as having been a lonely, somewhat seclusive, fanciful little girl with a vivid imagination. Fairly regularly the father or the mother is interested in food, cooking, calories, diets,

² It is said that the disease may very rarely be seen in the male, but there has been no such occurrence in the present series.

³ Electroencephalographic studies were made on 3 patients (Dr. B. L. Pacella, electroencephalographer). Irregular mixtures of low to moderate voltage 12 to 16 cycles per second activity characterized the tracings. Occasional random and short series of 8 to 11 cycles per second potentials exhibiting distorted contours were noted. Hyperventilation resulted in a few 7 to 8 cycles per second potentials. Dr. Pacella interpreted these tracings as abnormal and suggested that they were indicative of cerebral dysfunction of a physiologic type very likely based on malnutrition.

and the like and, as a result, the child's eating is very early under close surveillance. In the pre-adolescent years she is apt to be a chubby, intelligent, energetic, and obedient girl. With the advent of the menarche, irritability and aloofness increase and there may be open discord between her and one parent, more frequently the mother. In spite of this conflict she is dependent upon home and leans more and more on family supports. And then school friends or members of the family begin to tease her about her "double chin" or "piano legs" or call her "fatty." Very soon a reaction is precipitated. She begins to diet, usually rigorously and remorselessly and in the face of a lusty appetite. Anorexia comes later, and with it a more rapid diminution of food consumption. Contemporaries begin to be interested in boys and enjoy dates but not the girl who is destined for a full-blown anorexia nervosa. True, she may go to dancing school and be with boys but she is not genuinely interested. Concurrently, it is noticed that she becomes busier, is constantly on the go, has many irons in the fire, and complains of so little time. She always feels pushed. Conscientious in the extreme, she devotes long hours to her studies, makes good marks, and is perfection in decorum. As a result she may become "teacher's pet" and be held up to other members of her class as a shining example of rectitude. Only rarely is she active in competitive sports. Mood swings begin to be apparent and with these come periods of irritability and increasing stubbornness. Following graduation from secondary school, the young lady may attempt college or marriage, either of which is generally a failure, and at this juncture family pressure forces treatment.

2. In cross section

The young woman afflicted with anorexia nervosa has certain distinguishing personality qualities.⁴ She is a tense, hyperactive,

⁴ Clinical psychological studies were carried out on 4 patients (Gladys Tallman, M. A., psychologist). The Wechsler-Bellevue battery regularly demonstrated intelligence in the high average or superior range while the Goodenough and the Rorschach tests equally consistently showed a neurotic pattern laden with anxiety associated with a sexual

alert, rigid person. Usually she walks, talks, and thinks rapidly. She is inordinately ambitious, drives herself hard, is markedly sensitive, and obviously feels insecure. An immature and severe conscience guides her actions and she is said to be hyperconscientious. Neatness, meticulousness, and a mulish stubbornness not amenable to reason make her a rank perfectionist. Usually she is introverted, serious, self-willed, and lacking in the warmth and spontaneity that are consistent with her years. She is a "little old lady" or the puritanical "old maid," yet respected and admired by her female contemporaries. Boys, however, pay little attention to her and she has no genuine interest in them. If, because of social or family pressure, she has married, sexual adjustment is unsatisfactory with repugnance for coitus a prominent feature. Furthermore, masturbation is vigorously denied and homosexual attachment unknown.

The patient with anorexia nervosa is moody, weeps easily, may complain of being nervous, and almost always feels that she is not wanted and has been a failure. And these attitudes toward self exist in spite of superior performance. Usually she is proud of her emaciation and what it represents in terms of accomplishment—her ability to diet better than other girls—and has a fear of gaining weight and a horror of becoming fat. With it all, the patient is quite dependent, desirous of attention, and fearful of giving her confidence to anyone.

COMPULSION NEUROSIS WITH CACHEXIA (ANOREXIA NERVOSA)

Anorexia nervosa has long been considered a visceral symptom of hysterical origin. Dejerine(9) termed it "primary mental anorexia" and believed it to be on an emotional base. Subsequent authors regularly termed it "hysterical anorexia." Only recently has it been suggested that the disease is a type of compulsion neurosis. Palmer(10) (April 1939), first made the proposal. Shortly thereafter (July 1939), Rahman, Richardson, and Ripley(7) noted that

problem. The sexual problem in every instance seemed to revolve around fear of the opposite sex and sexual relationships. Interestingly, 2 of the 4 subjects were converted sinistrals.

the ailment is a neurosis with "compulsive obsessive, anxious, and depressive features." Likewise, Waller, Kaufman, and Deutsch (11) observed obsessive-compulsive elements in the personality of the patients they studied. The present group of patients and those reviewed in the literature demonstrate features highly consistent with the accepted description of the obsessive individual. Further, if one compares the delineation of the definitive anorexic personality, as outlined in the previous section, with that of Freud's "anal-erotic character" (9) he finds much in common. From early childhood both have been aggressive, perfectionistic, punctilious types of individuals with a marked sensitivity to sex and an unusual interest in body function and form. Orderliness, meticulousness, parsimony, and stubbornness, amounting to obstinacy, are characteristic. The imperative, regularly recurring, and persistent thoughts of food conform with the typical pattern of obsessive thinking in the same way that the imperative urges to avoid food in a repetitive, illogical, and uncontrolled way conform with the typical pattern of compulsive acting. The continual reflections upon food and dietary problems, both in self and in others, furnish the ruminative component, while the highly characteristic and obvious tension and tension activity complete the links in the formulation of an obsessive-compulsive-ruminative-tension state (Meyer) (12). This combination of forces leads to cachexia; hence, the term compulsion neurosis with cachexia seems justified. Lastly, it should be added, as was emphasized by Pardee (13), that "actual loss of appetite is a rare occurrence." The patients do not eat because of lack of appetite, but because they are afraid to eat, thus the term anorexia is inappropriate.

ETIOLOGY

There seems little doubt that compulsion neurosis with cachexia originates early in life and slowly evolves into the clinical syndrome that becomes manifest at puberty or in the early postpubertal period. This suggests that a constitutional factor may be of considerable importance. Some support for this assumption is offered by Sheldon (6)

and Richardson (14) who point out that endocrine involvement, as evidenced by disturbance in the menstrual cycle, regularly precedes loss of weight. Richardson (14) further proposes more specifically that the constitutional defect may be in the nature of an endocrine deficiency. The fact that the histories of such patients are replete with familial psychopathy might also be interpreted as supportive evidence of an inherent predilection for neurotic illness. It seems unlikely, however, in the light of accumulated clinical data, that constitutional predisposition is the most significant factor in bringing about compulsion neurosis with cachexia.

Since the time of Gull, a morbid mental state has been considered a component of the illness. Even so, it is not yet known what part of the psychopathology is of causative significance and what part is the result of the disease process. It is apparent, however, that the patient's major problem is a disturbance of her interpersonal relationships: quite significantly in society as a whole, more sharply with her female contemporaries, very severely within the family constellation and to the point of repulsion in associations with the opposite sex. Therefore, it can be said that the more intimate the relationship with other human beings, the more repugnant and threatening it is to the patient. How does she defend herself from the seeming menace of these associations? The patient defends herself by not eating.

Various theories have been offered as to the primary gains achieved by the rejection of food. First, is that suggested by Brown (15) who emphasized how inanition prevented the individual from maturing and facing adult responsibilities. He concluded that the disorder is a problem in growing up. Wilson et al. (16) likewise stressed that the Rorschach indicated immaturity above everything else.

Second, is the more generally accepted thesis that there is a correlation between appetite for food and appetite for sex. Thus, thwarting and ultimately eliminating the desire for food brings about a state of malnutrition that keeps all biological processes at a low level and ultimately eliminates sex-

ual desire. In this way the timid individual is relieved of the responsibility of dealing with her strong erotic impulses. As a corollary of this mechanism, it is a noteworthy fact that in all patients reticence in discussion of sexual topics is extreme and conscious sexual thoughts and sensations are denied. Unquestionably there is suppression and repression of sexual material.

Third, Waller, Kaufman, and Deutsch (11) have emphasized that the neurosis is a symbolization of pregnancy fantasies through the gastrointestinal tract. They believe that the symptoms are an elaboration and acting out in the somatic sphere of a specific type of wish. According to them a desire for oral impregnation leads to compulsive eating and obesity in the earlier years. Rejection of food and malnutrition appear later as a ritualistic cleansing due to feelings of guilt. They believe that the menses are suppressed as a direct denial of genital sexuality and that the constipation symbolizes the child in the abdomen.

Fourth, Ryle(17) has suggested that the precipitating factors emanate from emotional conflict centering in the home, while Pardee(13) has gone a step further and said that the most uniform single factor is a conflict between the patient and her parents. He believes that an ambivalence, close dependence upon and antagonism toward the mother, and a great admiration of the father due to an unresolved Oedipus situation bring about violent conflict and subsequent attempts to establish independence from the parents who represent an intolerable psychological situation. Because of parental oversolicitude and subjugation, efforts to achieve independence are unsuccessful and the patient develops extremely aggressive thoughts toward her parents. Strong feelings of guilt result. Rejection of food is a masochistic device of atonement for this guilt. Palmer(10), also has stressed the unhappy home relations with spoiling and overindulgence on the part of one parent and hate and hostility directed toward the other. It was his belief that the intense repression of these hostile instinctual impulses motivated the self-punitive and expiatory symptoms.

Fifth, Pardee(13) has also mentioned the

significance of poor training. He stated that these young women could not grow up because they were neither trained to do so nor allowed to do so by indulgent, apprehensive, and neurotic fathers or mothers. He found the mother more frequently at fault. In this connection, it should be added that the mechanism of contagion may also play a significant rôle, inasmuch as several of the present group of patients have mirrored their mothers in physical appearance, ideas, neurotic attitudes, methods of speech, and mannerisms. They are indeed "chips off the old block."

Lastly, it has been pointed out frequently that schizophrenic features are prominent in many cases of compulsion neurosis with cachexia. Langdon-Brown(15) thought that dementia præcox was in the background. Brill(18) stated that many were truly schizophrenic. Nicolle(19) also discussed the illness as possibly belonging in the class of latent schizophrenia. More recently Small-don(20) has concluded that the disease is not a neurosis but a sweeping total personality disorder. In this connection it is to be remembered that Stanley Cobb(21) placed compulsion neurosis just above schizophrenia in his graded classification of mental disease.

The secondary gains achieved by rejection of food are rather obvious. Inadequate eating brings about great solicitude, attention, and spoiling from the parents and enables the patient to regress to infantile reactions and dominate her restricted environment. Furthermore, the resultant emaciation constitutes an excellent defense against establishing a love relationship(7, 19), because a gaunt, haggard female is extremely unattractive to the male. It is perhaps for these reasons that the patient demonstrates a definite element of gratification in her behavior. There is no doubt that she takes pride in her unique accomplishment and repugnant appearance.

In addition to these psychologic mechanisms which are significant factors in the production of the behavior disturbance described, one must also consider the effects of inanition on the thought processes. Surprisingly, this important physiologic causative agent is not mentioned by a single author in the literature reviewed pertaining to anorexia

nervosa. Psychiatrists have long been aware that changes in the internal environment of the individual may produce deviations in thought and action(22); as exemplified by toxic deliria or personality reactions of the organic type. Similarly, starvation or semistarvation results in behavior disturbances. Schiele and Brozek(23), by semistarvation under controlled conditions, produced a neurosis characterized by "intense preoccupation with thoughts of food, emotional change tending toward irritability and depression, decrease in self-initiated activity, loss of sexual drive, and social introversion"(p. 32). These experimentally determined personality deviations have a close parallel in natural starvation(24-26), and likewise fairly closely approximate the characteristic symptoms observed in compulsion neurosis with cachexia. In addition, a critical study of Schiele and Brozek's report(23) reveals specific obsessions and compulsions as a feature in several cases. Accordingly, it would seem safe to conclude that a certain part of the behavioral changes in this disorder are the direct result of improperly functioning ill-nourished organs.

From the material here submitted and from the cited authors' interpretations one is brought to the inescapable conclusion that this form of cachexia represents a severe derangement of the entire biologic organism. "The behavioral, emotional, and social manifestations of starvation may be looked upon as psychosomatic phenomena in a broad sense; that is, they are the results of a complex interaction between anatomic, physiologic, individual-psychologic, and social-psychologic factors"(23; p. 47). On the basis of evidence available it seems likely that constitutional predisposition makes a fertile soil for the formation of this deep and sweeping personality disorder. Compulsion neurosis with cachexia becomes a manifest illness at the pubertal period as the child apparently tries desperately to reject her sexuality and the physical and emotional responsibilities related thereto. Specifically why this is true is at present unknown. But whatever may be the dynamic psychological factors, it is apparent that intense, inhibited, and poorly directed emotional forces bring about a pattern of

thought, feeling, and action more nearly consonant with obsessive-compulsive neurosis than any other known clinical entity. It would further seem evident that the illness is fostered and perpetuated by profound secondary malnutrition.

PROGNOSIS AND TREATMENT

Prognosis and treatment go hand in hand because the ultimate outlook for the patient suffering from compulsion neurosis with cachexia depends in large measure on the methods of therapy employed. No doubt many mild cases recover spontaneously, a not unreasonable assumption in the light of the importance of growing up and the resolution of parental ties as curative agents, two events that usually occur with the progression of years. Such patients never reach the physician and their frequency and clinical course are unknown. However, very likely such a group exists, because the incidence of menstrual disturbances and dietary problems in adolescent girls is high. Perhaps many of these minor illnesses fall into the category of mild compulsion neurosis with cachexia. But when the disorder is fully developed and of a severity such as has been described in this paper, it, like all obsessive-compulsive reactions, is difficult to treat, not only from day to day but also on a long-term basis so as to achieve recovery and to avoid relapse. Magendantz and Proger(27) support this view and hold that the possibility of satisfactory treatment is remote and that permanent recovery is improbable. On the other hand, Ross(28) reported 16 out of 19 cases absolutely well following a Weir-Mitchell regime of bed rest, isolation, high caloric diet, and a superficial discussion of problems. Of the 10 cases included in this report, 5 achieved socially satisfactory though emotionally limited adjustments. All held to their personality qualities of introspection, stubbornness, and lack of warmth, and all but one continued to have difficulty adjusting to the opposite sex. Regularly, after attaining proper weights, they later dropped to lower levels and remained thin, though not cachectic, individuals. Two patients, after satisfactory initial gains, discontinued treatment. One is known to have relapsed and the other could

not be followed up. Three patients are still under treatment, two progressing satisfactorily and one unsatisfactorily.

Described methods of treatment are quite variable. Certain authors(29-31) recommend superficial reassurance and forced feeding while others(32, 33) stress the essentiality of deep psychotherapy and the relative unimportance of physical measures. Likewise, there is no unanimity as to the most helpful attitude of the physician. For example, Venables(34) asserts that the doctor must take a very firm position and "be prepared to fight for every mouthful" of food the patient takes. Similarly, Ryle(17) says that the patient must be dominated by her physician and her nurse. On the other hand, Palmer(10) states that efforts of exhortation, persuasion, and coaxing are to be strictly avoided, and Richardson(14) holds that such coercive measures are positively dangerous inasmuch as they may precipitate suicidal attempts.

The author's method of treatment has consisted of a coordinated program of psychotherapeutic and somatotherapeutic procedures. It has been learned that even though the major treatment is psychological it must be correlated with adequate physical measures, if satisfactory results are to be achieved. Furthermore, active treatment and long-term follow-up must be carried out over a substantial period of time, occasionally years, in order to effect cure and minimize relapse.

The first requirement is that the patient be removed from her home and placed on a definite regime in a sanitarium, nursing home, or hospital. This accomplishes the dual purpose of freeing the patient from neurotic parental influence and offering a setting where her total behavior can be guided 24 hours a day. More frequently than not special nursing is required to guide dietary requirements, to prevent the frequent hiding or vomiting of food, and to control the prominent symptom of hyperactivity and waste of precious energy. The program starts at bed rest or on a semi-ambulatory basis and consists of 6 modest feedings with low bulk and a value of approximately 1,500 calories per day. Vitamins orally and parenterally, together with

intramuscular injections of liver once or twice each week, a high fluid intake, and mild cathartics, complete the initial physical regime. Should gentle purgatives prove ineffective in the control of the constipation that is so persistent during the early stages of treatment, a simple soapsuds enema is administered every other day, as may be necessary. During the initial period the patient may be quite uncomfortable with abdominal distension, eructation, and moderately severe bowel cramps. Because her previous diet has been quantitatively negligible, virtually each mouthful of food creates discomfort. Hence, repeated reassurance and explanation of causes of discomfort must be given by both physician and nurse. With abundant praise, reassurance, and encouragement these first difficulties are surmounted so that both caloric content and bulk of diet can be increased gradually. After 2 to 3 weeks the program should be elevated to 3 regular meals and 3 intermediate nourishments with a total of 3,000 to 3,500 calories in 24 hours. Should the patient be unable to accept this volume of food, insulin in tonic doses (5 to 25 U) should be administered 45 to 60 minutes before each meal.⁵ About this time abdominal discomfort has largely disappeared and the physical regime of the patient can be increased. With greater activity, edema of

⁵ Insulin as a stimulant to appetite in this type of case has been much discussed in the literature. By several(17, 31, 35), its use has been deplored because it was believed that the blood sugar is already at a low level. By others(7, 14), insulin has been found to be an effectual adjunct to treatment, a conclusion with which the author concurs. Insulin, when administered prudently and in small dosage, carries no risk and powerfully enhances food intake. In fact it may frequently prove to be a decisive factor in the early stages of treatment. In none of the present cases was insulin given as a shock procedure such as described by Wilson, Rymarkiewiczowa, and White(16) in their efforts to interrupt the habit of refusal of food.

In this connection it should also be added that other endocrine products (pituitary hormones, estrogenic substances, and thyroid extract), suggested by many authors, were not employed. There would seem to be no rationale for the use of pituitary materials or estrogens since menstrual function is resumed in due time without supplementary glandular therapy. Thyroid when administered in effective dosage causes weight loss. These findings support the observations of Pardee(13).

the feet, ankles, and lower legs frequently appears and is an annoying though short-lived symptom. Presumably this extravasation of fluid into the tissues is due to stasis, since all evidence of swelling disappears within a few days. The cardiovascular apparatus rapidly adjusts itself to the new and increased load of work. By the end of the third week the patient should be able to cooperate in a program that includes one full hour of exercise and one full hour of occupational therapy twice each day in conjunction with an after-luncheon rest period and adequate time for reading and play.

Although necessary physical procedures in the care of the patient have been outlined in some detail, it is not to be forgotten that, as was pointed out by Evans (36), the fundamental purpose of treatment is to remove the psychological protest to food. It is the neurosis and not the appetite that must be the prime focus of attack by the physician. Therefore, psychotherapy is the major remedial agent. Little reference should be made to diet and the family and nursing personnel are instructed to avoid talking about food or the patient's dietary habits. During the early weeks of treatment psychotherapy consists of reassurance and explanation combined with general mental hygiene reeducation.⁶ From this training the patient receives a working knowledge of the nervous system and the emotions, and the therapist is given opportunity to establish rapport and appraise his patient and her problems. At the end of approximately 3 weeks, therapy proceeds gradually to a deeper level. Most patients are intelligent and verbally cooperative and early demonstrate partial insight. But the therapist must not be deceived because, as was pointed out by Palmer (10), even though these patients profess to have no fear arising from internal sources, their actions belie their state-

ments. They adhere desperately to the well-established patterns of behavior. Accordingly, one proceeds cautiously and slowly into a discussion of his patient's feelings of hostility toward her parents, her ambivalence, her fear of sex and its various connotations of intimate relationship, her feelings of guilt, and lastly, her refusal of food as a punitive and expiatory process. Somewhere along the way significant dynamic factors are encountered and when the related anxiety is eliminated by free and open discussion, tenseness and resistance begin to disappear. Finally, and of almost equal importance, the patient's general maladjustment is considered and efforts are directed toward total personality improvement. This includes discussions of maturity and immaturity, the hedonistic principle of conduct, and the necessity of establishing purposes and goals in life. Without exception, it has been necessary to help the patient plan for the future and evolve a setting for living and working outside of the home that will in due time bring independence and a sense of belonging. It is these latter goals that demand long-term follow-up and guidance. In subsequent interviews, at first weekly and then in decreasing frequency, practical problems of everyday living and human relationships are discussed, dynamic factors previously considered are reviewed, and new and better habit patterns are encouraged and reinforced. Active therapy lasts approximately 3 months while subsequent follow-up continues for as long as 3 years. In spite of these methods, tendency to relapse is marked and occasionally it is necessary for the patient to come into sanitarium residence for short periods in order to regain lost ground. The treatment of compulsion neurosis with cachexia is always a sustained challenge to the therapist.

SUMMARY AND CONCLUSION

Anorexia nervosa dramatically demonstrates the inseparability of mind and body and is a classic example of a psychosomatic disorder. It is primarily a psychic and secondarily a somatic disturbance. Inasmuch as the personality reaction of the individual suffering from anorexia nervosa more nearly

⁶ The method of reeducation employed is that of Doctor William B. Terhune, Medical Director of the Silver Hill Foundation, and consists of a series of booklets describing principles of adaptation, management of emotions, and techniques of living. The patient reads and discusses these booklets with the physician and then is taught to apply the newly acquired information to her own difficulties. All patients in the present series were treated in collaboration with Doctor Terhune.

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conforms to compulsion neurosis than that of any other psychiatric disorder and, in addition, has cachexia rather than anorexia as a leading symptom, it is suggested that the illness would be more accurately termed compulsion neurosis with cachexia. Although definitive data as to etiology are not available, evidence presented indicates that constitutional defect probably predisposes to the illness, which becomes manifest at puberty or shortly thereafter because of severe and deep psychological conflicts centering in the family constellation. The dynamics of these conflicts are discussed and the conclusion drawn that the patient's basic difficulty lies in her more intimate interpersonal relationships. Adequate physiological and psychological treatment, described in detail, offers a reasonably good prognosis, although the tendency to relapse is great.

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PSYCHOPHYSIOLOGICAL STUDY OF MENTALLY ILL PATIENTS¹

PART II—CHANGES IN THE REACTIONS TO EPINEPHRINE AND MECHOLYL AFTER ELECTRIC SHOCK TREATMENT

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The physiological and psychological effects of epinephrine and mecholyl reported in the previous paper (1) are correlated with different clinical syndromes. It occurred to us that it would be important to know if the reaction to these drugs was altered by a change in the patient's clinical status. No more dramatic mechanism for a quick alteration of the clinical picture of the neuropsychiatric patient exists than electric shock treatment. Accordingly, we have studied the reaction to epinephrine and to mecholyl of 24 patients before and after electric shock treatment.

Little work has been done on the relationship between the peripheral autonomic nervous system and psychological picture pre- and postelectric shock treatment. Solomon Darrow and Blaurock (4) studied the blood pressure and palmar sweat (galvanic) response in psychotic patients before and after insulin and metrazol therapy. They found that in many cases that were improved the blood pressure was unchanged but that there was a larger galvanic change than before treatment. Hock, Kulis, and Rouke (3) studied 40 schizophrenic patients before and after insulin and metrazol shock. They found that with clinical improvement the abnormal characteristic of the palmar gal-

vanic response diminished or disappeared. In 5 cases the galvanic response continued to be abnormal after treatment while the clinical condition seemed improved. Four of these cases relapsed when treatment was discontinued.

We know of no references in the literature to the change in reaction to epinephrine before and after electric shock treatment; however, Gold (2) studied the reaction to mecholyl of 33 schizophrenic patients before and after insulin shock therapy. He found that clinical improvement was accompanied by a decreased reaction to mecholyl and interpreted this as due to an increase in the sympathetic nervous system's reaction in overcoming the parasympathetic stimulus.

PATIENTS AND METHOD

We studied 24 patients before and after electric shock treatment. The diagnostic categories were as follows: schizophrenia, 8 cases; involutional psychoses, 8 cases; psychoneuroses, 4 cases; manic-depressive psychoses, 3 cases; psychopathic personality, 1 case. The patients' reaction to epinephrine was studied 2 days prior to the first shock and the reaction to mecholyl one day prior to the first shock. The reaction to epinephrine was again tested the day after shock with the reaction to mecholyl being tested the following day. If the patients relapsed clinically, they were immediately retested.

DEFINITIONS OF CLINICAL TERMS

Improved.—The patient showed favorable changes in clinical picture and was able to leave the hospital within 2 weeks after termination of electric shock treatment.

Improved but Relapsed.—The patient showed enough clinical change at the time of termination of the electric shock to make it likely he would be able to leave the hospital,

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but within 10 days relapsed so that additional treatment was necessary.

Not Improved.—Patients showed little change in the clinical picture during or after electric shock and required another type of treatment later.

Worse.—Patients showed an aggravation of symptoms sufficient to necessitate termination of treatment.

RESULTS

The reaction to epinephrine and mecholyl in terms of systolic blood pressure was analyzed in 19 cases only, for there were 5 cases who experienced a chill after mecholyl and it was not possible to get accurate serial blood pressure readings during the chill. These cases will be discussed separately below.

(a) *Reaction to Epinephrine.*—The results are described in terms of magnitude of blood pressure rises after intravenous epinephrine. Thirteen of the 19 patients showed an increase in the height of the blood pressure rise to epinephrine. Of the remaining 6, 2 showed a slight decrease (less than 10 mm. Hg.) and 4 were unchanged. The increase ranged from 12 to 43 mm. Hg., with the greater number of cases lying between 15 mm. Hg. and 25 mm. Hg.

Ten of the 13 who had an increased post-shock reaction to epinephrine improved clinically; 1 was worse and the other 2 were unchanged. Three of those who improved later relapsed and their blood pressure curves reverted to the preshock type.

Of the 6 who had no increase in reaction to epinephrine after shock, none improved.

Of 5 with an original preshock rise to epinephrine of 80 mm. Hg. or more, none showed clinical improvement. Of 8 with an original preshock reaction to epinephrine less than 60 mm. Hg. only 4 showed improvement and of these 3 relapsed. The best clinical results with electric shock were obtained for those patients with an initial (preshock) epinephrine blood pressure in the range response between 60 and 80 mm. Hg. and with a definite increase in epinephrine response (15 to 25 mm. Hg.) after electric shock.

(b) *Reaction to Mecholyl.*—The results are described in terms of change in area be-

neath the abscissa described by the systolic blood pressure curve after mecholyl is given.

Of the 19 patients studied, 12 showed a significant decrease in area after electric shock (area below abscissa diminished more than 10 units). The range of decrease was from 14 to 70 units and the majority showed a change of between 20 to 40 units. Of these 12 cases, 9 were clinically improved and 3 unimproved.

Seven cases showed an insignificant change in area (decrease of 10 units or less). Of these, 1 improved, 5 were unimproved, and 1 was worse.

Of 4 cases with total areas preshock less than 12 units, none improved. The best clinical results with electric shock were obtained for those patients with an initial (preshock) area of more than 10 and a definite decrease (more than 20) after electric shock.

(c) *Resting Blood Pressure (24 Cases).*—Twelve cases showed a drop in resting blood pressure after electric shock. Of these, 11 were improved and one unimproved.⁶

Eleven cases showed no change in resting blood pressure, 4 were improved, 6 unimproved, and 1 was worse.

One case showed a rise in resting blood pressure after shock and was not improved. The best results were obtained for those cases showing a clear-cut fall in resting blood pressure after electric shock treatment.

(d) *Precipitated Anxiety.*—Four cases were neurotic individuals who suffered from anxiety attacks which could be experimentally precipitated by epinephrine. After electric shock treatment there was an increase in the severity and frequency of the spontaneous anxiety attacks and, when epi-

⁶ Nine of the cases in this group had autonomic patterns classified as Type VI, i.e., a moderate or marked rise in blood pressure after epinephrine and a marked drop in blood pressure after mecholyl. This pattern is unusual in one sense—namely, the reciprocal relationship between epinephrine and mecholyl no longer obtains. Ordinarily a high epinephrine response (increased sympathetic reactivity) is accompanied by decreased mecholyl response and vice versa. In this group (VI) reactions to both drugs were moderate or extreme. Also in these 9 cases, a remarkably relaxing effect was noted with mecholyl (formerly tense patients felt at ease; some lost their tremors and were able to sleep for the first time in days). For explanation of types (groups) see previous paper (1).

nephrine was given, an increased blood pressure rise (Fig. 1) together with a more marked anxiety attack was obtained (compared to preshock).

Three cases were neurotic patients who suffered from anxiety attacks which could be experimentally precipitated by mecholyl. After electric shock treatment these patients no longer experienced anxiety. There was also a decreased blood pressure reaction to

cally in remission when the electric shock treatment was stopped but autonomically showed little change. Within a few days after the treatment, these cases relapsed. Three cases showed an increase in epinephrine reactivity after electric shock treatment and were clinically improved; however, within a few days after the last electric shock treatment, they relapsed and the curves of epinephrine reactivity of all 3 returned to

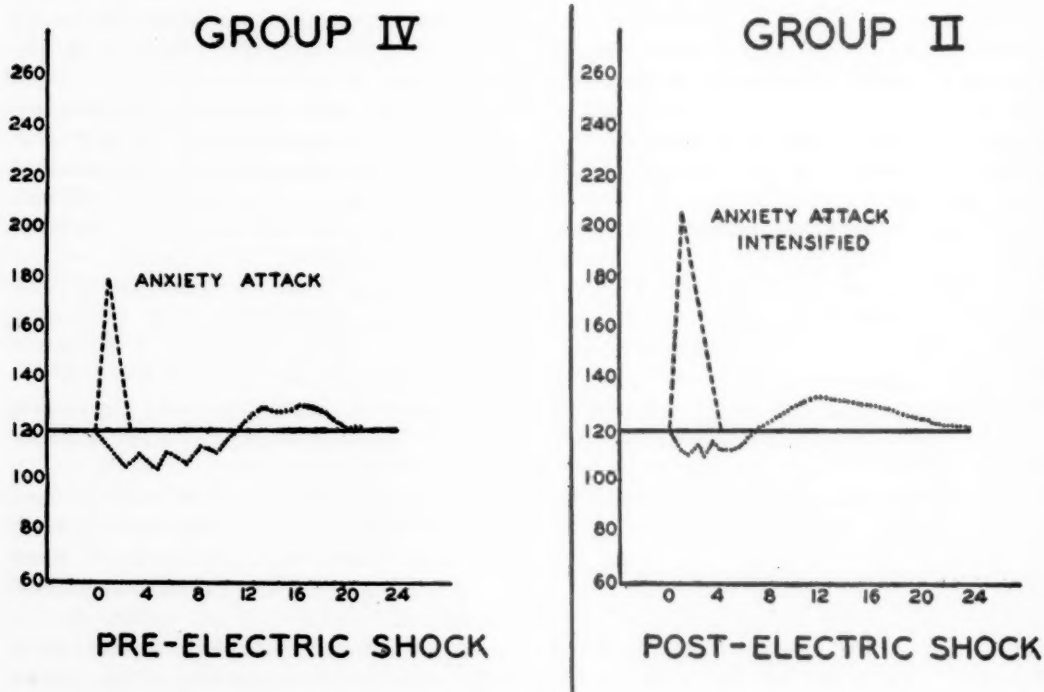


FIG. 1.—Effect of electric shock treatment on a neurotic patient whose anxiety was precipitated by epinephrine i.v. After electric shock an increased blood pressure response to epinephrine was obtained together with a more intense anxiety attack. Note the change in autonomic pattern from Group IV preshock to Group II postshock.

The epinephrine effect is represented by the broken line, the mecholyl effect by the dotted line.

mecholyl together with a failure of mecholyl to precipitate anxiety (Fig. 2).

Two cases were neurotic patients suffering from anxiety whose anxiety could be precipitated experimentally by both epinephrine and mecholyl. After electric shock, there was an increase both in the blood pressure response to epinephrine and in the anxiety produced experimentally by epinephrine; on the other hand, there was a decreased blood pressure response to mecholyl and failure to precipitate anxiety experimentally by mecholyl.

(e) *Remissions*.—Two cases seemed clinically

the preshock type. All 6 of these cases were classified in Group V[†] on the basis of the original (pretreatment) autonomic pattern of response to the drugs. Thus far, in our experience, no case belonging to Group V has had a successful outcome with treatment.

(f) *Patients with Experimentally Induced Chills*.—As noted above, 5 patients were excluded from the analysis of blood pressure graphs because they developed frank chills after mecholyl, which rendered

[†] For explanation of groups I through VII see previous paper (1).

frequent estimation of the blood pressure impossible. These 5 cases are in themselves of extraordinary interest. Mecholyl at first induced a moderate to marked fall in blood pressure which remained low for at least 10 minutes. Between the 11th and 23rd minute, in all cases, a frank chill or rigor occurred lasting several minutes. After the chill was over the blood pressure readings were usually well above the base line. (It appeared to us that the chill might be part of the effort of the organism to reestablish homeostasis which had been unbalanced by mecholyl.)

their autonomic pattern before and after electric shock. The 7 autonomic patterns are described in the previous paper. Each circle represents one case and the symbols are as follows:

- No change after electric shock.
- ⊖—Patient got worse after electric shock.
- ⊕—Patient improved after electric shock.
- ⊕ → ○—Patient improved after electric shock but promptly relapsed.

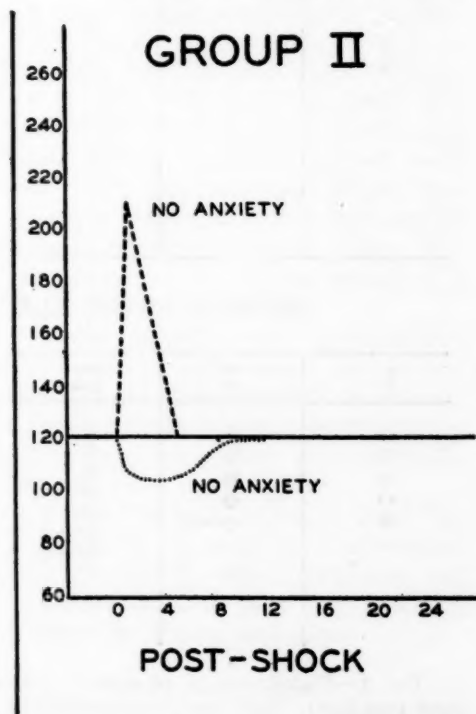
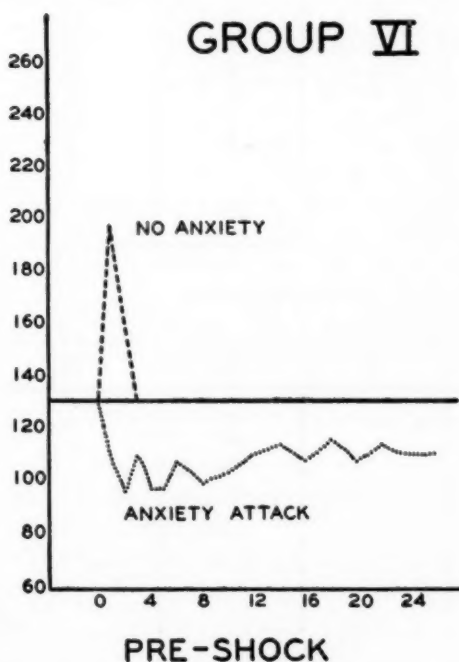


FIG. 2.—Effect of electric shock treatment on a neurotic patient whose anxiety was precipitated by i-m. mecholyl. A decreased blood pressure response to mecholyl was obtained after electric shock and the patient's anxiety could no longer be precipitated by the drug.

Another observation of considerable interest was the fact that these patients with mecholyl-induced chill responded in a dramatic way to electric shock treatment. After 1 to 3 shocks, they showed striking improvement with sudden alleviation of all clinical symptoms. There was no tendency for relapse as was noted for some of the other cases.

(g) *Autonomic Patterns before and after Electric Shock Treatment.*—Fig. 3 shows the distribution of all the cases according to

Note that all 12 cases in Groups I to IV inclusive either showed no improvement, transient improvement with relapse, or were worse after electric shock treatment. Patients with these autonomic patterns have normal or increased sympathetic reactivity as tested by drugs.

Seven of 9 cases in Group VI and all the cases in the Group marked *chills* were improved after electric shock. These 2 groups represent cases with moderate to marked

In several cases definite shifts in autonomic reactivity paralleled clinical improvement; however, when a subsequent relapse occurred there was a concomitant shift of the autonomic pattern back to the preshock type.

Patients with pretreatment high response to epinephrine (80 mm. Hg. or over) were especially refractory to electric shock.

Patients who suffered from anxiety attacks which could be experimentally provoked only by epinephrine were made worse, while those in whom the anxiety could be experimentally provoked only by mecholyl were greatly improved by electric shock treatment.

This investigation of the autonomic nervous system responses before and after electric shock treatment enables us to suggest tentative criteria for cases likely to be responsive to electric shock. The table which follows simply summarizes what has been true of our work thus far, and needs substantiation in a much larger series of cases. These are hypotheses which are to stand or fall on the basis of future work.

PROBABLY RESPONSIVE TO ELECTRIC SHOCK

- (1) Cases with chills after mecholyl.
- (2) Anxiety cases with anxiety precipitable by mecholyl only.
- (3) Cases with preshock moderate blood pressure reaction to epinephrine (60-80 mm. Hg.).

PROBABLY UNRESPONSIVE TO ELECTRIC SHOCK

- (1) Anxiety cases with anxiety precipitated only by epinephrine.
- (2) Cases with a preshock marked blood pressure response to epinephrine (more than 80 mm. Hg.) together with small response to mecholyl (less than 12 area units).

PART II—SUMMARY

- (1) The physiological and psychological response to intravenous epinephrine and intramuscular mecholyl of 24 neuropsychiatric

patients was studied before and after a series of electric shock treatments. Special attention was given to the curves of systolic blood pressure following the injection of the drugs.

(2) Over-all effects of electric shock were:

(a) A lowering of the resting blood pressure level.

(b) An increase in the systolic blood pressure response after intravenous epinephrine.

(c) A lessened systolic blood pressure response after intramuscular mecholyl. These changes were usually accompanied by clinical improvement.

(3) Those patients who before shock treatment experienced an anxiety attack or a frank chill after injection of mecholyl showed a dramatic clinical response to electric shock treatment. Not only was their clinical condition greatly improved after a few electric shock treatments, but it was no longer possible to precipitate an anxiety attack or a chill by intramuscular mecholyl.

(4) Those patients with pretreatment high response to intravenous epinephrine (80 mm. Hg. or more) or with anxiety attacks precipitable by epinephrine showed no clinical improvement after electric shock. Anxiety was made worse.

(5) Several patients failed to show any change in pattern of response to autonomic drugs after electric shock treatment and these patients failed to show any sustained improvement in clinical condition.

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WAVE AND SPIKE DISCHARGES IN THE EEG¹

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INTRODUCTION

One of the earliest reports on the electroencephalographic findings associated with petit mal epilepsy was that by Gibbs, Davis, and Lennox(1). They stated that an alteration between a fast and a very slow wave is associated with the petit mal attack. Later, Gibbs, Lennox, and Gibbs(2) reported that "a three per second wave and spike in the electroencephalogram is pathognomonic of petit mal epilepsy." In that same report, the authors demonstrated some of the variations that may occur in the petit mal pattern on the EEG.

The purpose of this study was to examine further the various components of the EEG showing wave and spike formation in the 3-per-second range. The following were taken as topics for investigation: the wave and spike component—its character, its constancy, and its variation; the possible correlations of either a qualitative or a quantitative nature, between the wave and spike component and the rest of the record, and any possible correlation that might exist between these abnormalities and the frequency of occurrence of petit mal seizures.

METHOD

Two hundred consecutive electroencephalographic records showing wave and spike activity in the 3-per-second range were studied. All the tracings were obtained with the use of a 3-channel ink-writing Grass electroencephalograph. Solder disc electrodes, applied with electrode jelly and held in place with collodion, were used in an 8-lead placement over both hemispheres. The routine recording consisted of a 20-minute run over each hemisphere, followed by a 3-minute hyperventilation record read simultaneously from both frontals and from one occipital lead. Following hyperventilation, a 3-minute resting period was recorded.

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RESULTS

The age distribution of the patients included in this study ranged from 4 months to 51 years. The distribution was almost equally divided between those over 20 years of age, and those under 20. In the group over 30 years of age were 11% of the cases (Fig. 1).

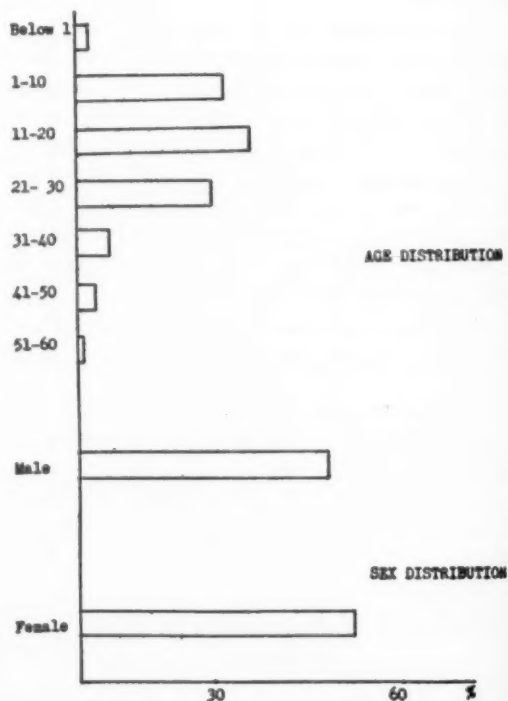


FIG. 1.—Distribution on basis of age and sex of subjects whose records were studied.

Distribution between the sexes was almost equal, with just a slight preponderance of females (Fig. 1).

No correlation was found to exist between the frequency of occurrence of petit mal seizures, and the number of spontaneous discharges of wave and spike activity in the EEG. Furthermore, the frequency of clinical seizures did not correlate with the abnormality of the record as a whole. These results were based on a comparison of the

records of patients showing more than 10 clinical petit mal seizures per day, with those of patients showing less than 10 seizures per day.

A large majority (70%) of the cases studied showed a normal basic rhythm with a dominant rhythm in the 8-12 per second range. Due allowances were made for normal variations in frequency at different age levels, as outlined by Gibbs and Gibbs(3),

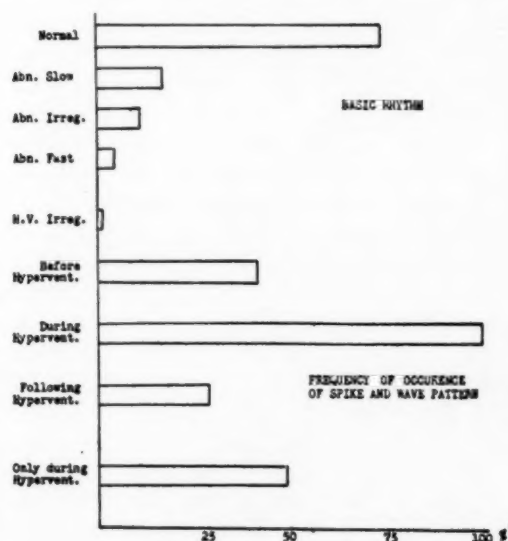


FIG. 2.—Top shows types of basic rhythm encountered. Bottom shows frequency of occurrence of wave and spike pattern during different phases of the record.

and based on our earlier experiences with children's records. The most common abnormality in the basic rhythm was an abnormally slow rhythm, with frequencies of less than 8 cycles per second. The other basic rhythm abnormalities, in the order of their frequency of occurrence, were: an abnormal irregular rhythm, in which no basic frequency was well established; an abnormally fast rhythm, with frequencies greater than 12 per second; a high voltage irregular rhythm (Fig. 2).

Spontaneous (prehyperventilation) bursts of wave and spike pattern in the 3-per-second range occurred in only 39% of the cases, and occupied from 0.05% to 99% of the record. Not one of this entire series of cases showed a wave and spike formation only in the prehyperventilation record. In

other words, wherever spontaneous wave and spike formation occurred, it was sure to follow also, either during hyperventilation, following hyperventilation, or both.

In 46% of these cases, wave and spike formation occurred exclusively during hyperventilation (Fig. 2). In only one case of the series was wave and spike formation found to occur exclusively after hyperventilation.

Frequencies of the wave and spike pattern ranged between 2.5 and 3.5 per second in most cases. There were a very few cases where the range of variation from the commonly accepted 3 per second was even wider. The widest of these variations fell in the range of 2-4 per second. Most frequencies, however, were in the 3-per-second range, or varied from this not more than 0.3 cycle per second.

Except for the 3 records (all from patients under 20 years of age) in which wave and spike formation occupied 98% or more of the tracing, the duration of the individual bursts of wave and spike activity was as follows: anywhere from 1-40 seconds, when it occurred spontaneously; from 1-100 seconds, during hyperventilation; from 1-40 seconds, following hyperventilation (except for one record, where there was a 220-second burst which occurred in the posthyperventilation tracing). Except for this one case, the longest sustained duration of the wave and spike formation occurred during hyperventilation. Hyperventilation also produced the most characteristic frequencies, and the greatest incidence of wave and spike formation. The ratio of occurrence of wave and spike formation in this series, before, during, and following hyperventilation, was 39:94.5:27, showing the heavy preponderance of wave and spike formation during hyperventilation. This does not take into consideration the 4 records of patients who could not be made to hyperventilate and who probably would have raised the percentage of wave and spike discharge during hyperventilation, had this been successfully carried out.

All these records showed the tracings from both hemispheres to be bilaterally synchronous. Simultaneity of wave and spike recording from all leads was found in 97.5% of these cases. In the 2.5% showing spread

over each hemisphere, the onset was in the frontal lobes.

A plotting of the position of the spike, in the wave and spike component as occurring either preceding the wave, on the ascending phase of the wave, on the descending phase, or following the wave, resulted in the distribution shown in Fig. 3. It is apparent from this that the spike occurred with the

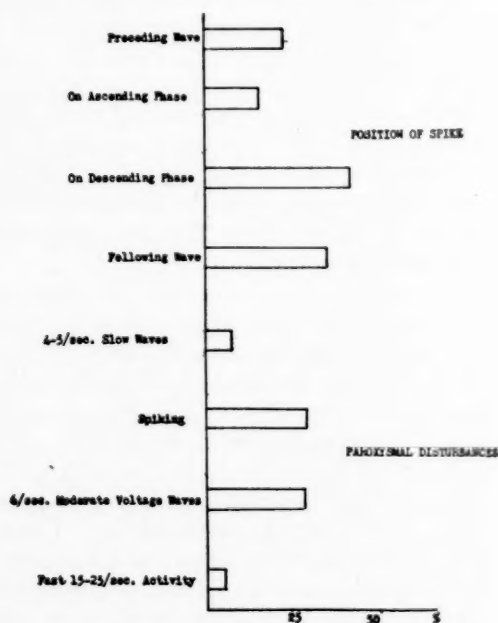


FIG. 3.—Top: various positions of spike in relation to wave. Bottom: other paroxysmal disturbances, in addition to the wave and spike discharge, and their frequency of occurrence.

greatest degree of frequency either on the descending phase of the wave or as an aftermath of the wave. Both the prominence and the position of the spike in the wave and spike component varied greatly in each individual record. There was a moderate degree of constancy of the position of the spike with relation to the wave in each burst. This was diminished when comparing one burst with another in the same record. The higher the amplitude of the spike in the burst, the greater was the degree of constancy of position of the spike with relation to the wave.

Prominence of spiking also showed a large degree of variation. Spiking was most prominent in the wave and spike component, when it was associated with a clinical petit mal

seizure which occurred simultaneously with the recording of the tracing. It was particularly prominent at the outset of the clinical seizure, and then gradually tapered off. There was a tendency for spiking to be more prominent in the younger age groups. Most of the higher ranges of spiking, on an arbitrary scale of 1-4, occurred in those patients under 20 years of age. The constancy of the prominence of the spike was poorly maintained. Here also, wide variation occurred in each individual burst, and showed even wider variation when comparing one burst with another in the same tracing. On the whole, the constancy of the prominence of the spike part of the wave and spike component was not anywhere near as well maintained as was the constancy of the time relation of the spike to the wave.

The most common other feature associated with the bursts of wave and spike activity was slow moderate voltage 4-5 per second waves which preceded the wave and spike discharge. These waves were found in 16% of the cases. In the remainder the onset of wave and spike discharge was abrupt, without any preceding build-up. One record in this series showed a very unusual type of build-up. Hyperventilation in this particular case produced a few slow 2-3-per-second waves which changed abruptly to 7-per-second waves with spikes. These lasted for approximately 16 seconds, and were then replaced by a typical 3-per-second wave and spike discharge. These discharges were all bilaterally synchronous. Strange to say, the patient had a clinical seizure which started concurrently with the 2-3-per-second discharge in which he fumbled at the electrodes and at his trousers and failed to respond. Clinically this gave the impression of being a psychomotor seizure. He cleared completely and responded, with the cessation of the 3-per-second wave and spike discharge.

Other paroxysmal disturbances in addition to the wave and spike formation were as follows: spiking, either single or multiple, in 25.5% of the records; runs of 6-per-second moderate voltage waves; runs of 4-per-second moderate voltage waves; runs of 15-25-per-second fast activity, all of which occurred in the order mentioned (Fig. 3).

DISCUSSION

The 3-per-second wave and spike was reported by Gibbs, Lennox, and Gibbs(2) as being pathognomonic of petit mal epilepsy. This criterion has been almost universally accepted. We wish to emphasize that the 3-per-second wave and spike is pathognomonic of petit mal epilepsy only when the tracing is obtained simultaneously with a clinical petit mal seizure. The occurrence of bilaterally synchronous wave and spike components is highly indicative of idiopathic epilepsy. However, the clinical diagnosis of epilepsy cannot be made on the basis of these discharges, unless a clinical seizure occurs simultaneously. Any electroencephalographic laboratory with an adequate sampling of clinical material has come upon tracings showing 3-per-second wave and spike discharges recorded from a subject whose personal and family history are entirely negative for epilepsy of any type. These subjects are literally "carriers" of epilepsy, without being themselves afflicted. The occurrence of wave and spike discharges in a patient with minor seizures is highly suggestive that these attacks are petit mal rather than psychomotor in type.

The age distribution of these cases is somewhat at variance with the accepted notion that wave and spike disorders are rare past the second decade of life(4). It is noteworthy that almost half of these cases were past the age of 20 and 11% past the age of 30. It has been reported that petit mal disorders never begin past the age of 20. There is one case in this series, that of a 43-year-old white woman, who had a history of grand mal seizures only, over a period of years. At the age of 43, when dilantin therapy was instituted, she began to show petit mal seizures for the first time in her life, clinically and on her EEG.

The sex distribution confirms the work of earlier investigators which indicates that petit mal disorders are approximately equally distributed between the two sexes, with perhaps a slightly higher incidence in females. The fact that 70% of these records showed a basic rhythm in the normal frequency range is noteworthy. The records showing this normal basic rhythm could not be correlated with the age of the patients, nor with

the frequency of occurrence of clinical petit mal seizures. As many of the cases with more than 10 clinical petit mal seizures per day showed this type of record, as did those with less than 10 per day. There are not enough data available to decide whether or not this normal rhythm can be considered to be an indication of the relative benignity of this condition. Also inexplicable is the predominance of abnormally slow records over other types of abnormalities in the basic rhythm. The importance of hyperventilation in the precipitation of wave and spike discharges from the cerebral cortex was well established by Gibbs, Lennox, and Gibbs(5), who made detailed studies on the effects of hyperventilation on the EEG. The results of this study confirm the conclusions of these authors, and also those of Jasper and Kershman(6), who stated that most patients with petit mal epilepsy show wave and spike discharges in the 3-per-second range on the EEG during hyperventilation. Our results are at variance however, with the statement made by Jasper and Kershman(6), that many people who show this wave and spike discharge either before or after hyperventilation fail to show it during hyperventilation. This fact is brought out by the extremely high incidence in this series of patients who showed wave and spike discharge during hyperventilation.

The distribution of the bursts of wave and spike activity in the pre-ventilation, hyperventilation, and post-ventilation periods is considered to be of primary importance. The fact that only 39% of the records showed wave and spike activity in the spontaneous record, whereas 94.5% showed it during hyperventilation, brings out the importance of properly hyperventilating the patient during the recording of the tracing. This fact is even further emphasized when one considers that 46%, or almost half of all these cases, showed the wave and spike pattern only during hyperventilation, and that this pattern did not persist when hyperventilation ceased.

The fact that up to 99% of the pre-ventilation record was occupied by wave and spike discharges in 3 of these cases shows that the duration of cortical discharge does not necessarily adhere to the brevity of the observed

clinical attack. This is further borne out by the long duration of individual bursts in many of these records. The frequency ranges observed substantiate the findings of Jasper and Kershman(6) to the effect that variations in the frequency of 2-4 cycles per second may occur, but that adherence to the 3-per-second range occurs with the greatest incidence. The question of calling those records showing wave and spike activity at a frequency of less than 2.5 per second petit mal variants arises at this point. The criteria for diagnosing records as showing a petit mal variant were established by Gibbs, Gibbs, and Lennox(7). According to their report the cortical discharge in the "petit mal variant" should not be affected by hyperventilation, or by alterations in the blood sugar concentration. Frequencies of less than 2.5 per second occurred in 7 of this series of records. In 5 of these, the wave and spike discharges occurred only during hyperventilation, or were changed to a 3-per-second frequency (a more characteristic discharge) by hyperventilation. The other 2 records were from patients who showed no evidence of trauma, mental deterioration, or any other condition to account for a petit mal variant. Since the wave and spike component deviates in its frequency in many of these records from the arbitrary 3-per-second rhythm, it is proposed that a bilaterally synchronous wave and spike discharge "in the range of 3 per second," allowing a 0.5 cycle per second margin in each direction, be substituted for the arbitrary "3-per-second" discharge as acceptable for a diagnosis of idiopathic petit mal epilepsy, when associated with a concurrent clinical petit mal epileptic seizure.

The simultaneity of discharge from both hemispheres in all these records is a further indication of the fact, as stated by Jasper and Kershman(6), Gibbs, Lennox, and Gibbs (2), and Hursh(8) that the 3-per-second wave and spike discharge is always bilaterally synchronous. It is also a further bit of evidence in support of the recent work of Hursh (8), Penfield and Erickson(9), and Jasper and Droogleever-Fortuyn(10) indicating that petit mal seizures are subcortical in origin. It is also worth noting that not one of this entire series of records showed any evidence, either

clinically or in the EEG, of focal discharges. Thus the findings of a 3-per-second wave and spike discharge in the EEG may be accepted as almost *prima facie* evidence for the presence of a diffuse or generalized disorder. The lack of constancy of time relation of the spike to the wave in the wave and spike component appears to be at variance with the statement by Jasper and Kershman (6) that, when spikes do appear, they always show a constant time relationship to the wave. Further study of these records showed that this is true where the spike is of high amplitude, but is not so where the spike is of low amplitude. This might possibly be explained on the basis that where there is sufficient neuronal firing to produce a spike of high amplitude the time relationship of the spike to the wave remains constant. Where the neuronal firing does not involve enough neurones to produce a high amplitude spike, but can at best produce an abortive or low voltage spike, there may be sufficient slowing between the production of successive spikes, which according to Walter (11) are formed by the interlocking of fast components, to disturb the time relationship of spike to wave. It is of interest that spiking in these cases was at a maximum when there was sufficient cortical firing to produce a clinical petit mal seizure. These spikes appeared with maximum intensity, greatest constancy in time relationship, and highest voltage at the onset of the attack, and diminished in voltage, frequency, and constancy of time relationship as the seizure was spent, or as the driving force behind the seizure was dissipated.

The significance of the other accompaniments of the wave and spike discharge in the form of 4-5-per-second waves of moderate voltage cannot be satisfactorily explained. The former may be representative of the energy peaks at harmonic intervals, mentioned by Walter(12). As for the other paroxysmal disturbances, it is possible in view of the many patients in this series who had a history of having had grand mal epileptic seizures that the spiking is indicative of the grand mal condition. On the basis of Jasper's assumption that different components of the wave and spike pattern have different anatomical substrata(10) then the

spiking may represent an overactivity of one of these strata as compared to the other.

CONCLUSIONS

The wave and spike formations occur usually on the background of a normal basic cortical rhythm, are remarkably constant in their occurrence in a frequency range of 2.5-3.5 cycles per second, but show considerable variations in the position and amplitude of the spike component in the same record, and indeed within the same discharge. The wave and spike formations are seen most frequently during hyperventilation. Other paroxysmal disturbances occur in 50% of the records and the most frequent of these are single or multiple spiking discharges and paroxysmal bursts of 4-6-per-second activity. A surprisingly high incidence of wave and spike formation occurs after the age of 30 years.

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INVOLUTIONAL MELANCHOLIA AND CONVULSIVE THERAPY¹

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INTRODUCTION

Involutional melancholia is an agitated restless depression of middle life. It is the most common manifestation of the mental disturbances of the involutional period(42) which is between 40 and 55 years for women and between 55 and 65 years for men. At present, convulsive therapy, which was first used on schizophrenic patients, is considered the treatment of choice.

Muller, in 1930, summarized the evidence for using an antagonism between epileptic and schizophrenic states. Nyiro(23), in 1932, first attempted to produce convulsions by transfusing schizophrenics with the blood of epileptics. Von Meduna, in 1933, had suggested the reproduction of epileptic convulsions by giving a 20% solution of camphor to schizophrenics, intramuscularly, in increasing doses. In the same year, metrazol was used intravenously, producing the same effect with rapid remissions. In 1935, Von Meduna introduced convulsive therapy, which was later found most useful in affective disorders, especially in involutional melancholia.

Although electric shock treatment is the most extensive therapy used on involutional patients, there may still be some doubts about the rationale of the application of this drastic therapy to a mental disease which is known as relatively benign. Therefore it is imperative to compare the statistics of recovery and improvement in the preshock period with results on patients who have had the benefit of shock therapy.

The present paper aims at such a comparison between two populations treated at

the Institute of Living (The Neuropsychiatric Institute of the Hartford Retreat), at Hartford, Connecticut, between July 1, 1935 and December 31, 1937; and between January 1, 1945 and June 30, 1947. Before presenting the results of the comparison we should have clearly in mind the problems involved, the clinical aspects of involutional melancholia, and the various features of convulsive therapy.

CLINICAL ASPECT OF INVOLUTIONAL MELANCHOLIA

Incidence

Ault and Hootor(1) estimate that involutional melancholia accounts for 15,000 to

TABLE 1
DISTRIBUTION OF SEXES IN NONTREATED AND TREATED GROUPS OF INVOLUTIONAL PSYCHOSES: PRESENT STUDY

	1935-37		1945-47	
	No.	%	No.	%
Men	21	34.4	92	26.5
Women	40	65.6	255	73.5

20,000 cases, about 3 to 4% of all mental illnesses in this country. The United States Department of Commerce bulletin states that 3.3% of first admissions to hospitals were involutional melancholics(39). The Norwich (Conn.) State Hospital reported 1.3% for the 10-year period from 1930 to 1940. Involutional melancholia occurs in 13.5% of the affective psychoses. In a recent survey in Great Britain, there was a high incidence of Scottish and, to a lesser extent, Irish ancestry as compared to control groups of manic-depressives and schizophrenics(17, 19). Sargent and Slater(35) express similar views about Scottish and Irish origin.

Table 1 shows the distribution of sexes respectively in the 1935-37 and the 1945-47 series.

The mean age in both series was 53.2 for men and 50.1 for women, a difference of 3.1 years.

¹ From the Institute of Living, Hartford, Connecticut, Neuropsychiatric Service.

Thesis submitted to and approved by the Faculty of the Graduate School of Medicine of the University of Pennsylvania, toward the requirements for the degree of Master of Medical Science (M.Sc. (Med.)), for graduate work in psychiatry.

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PATHOGENESIS

Psychogenic Factors

Dreyfuss(11), in 1907, emphasized that involuntional melancholia was nothing but an accidental manifestation of manic-depressive psychosis. Noyes(30) feels that involuntional melancholia should be considered a special entity and not a modification of manic-depressive psychosis because of the special physiopsychological factors so peculiar to the climacteric.

Lipschitz(25), in 1906, remarked that persons suffering from "melancholia" show prepsychotic features denoting rigidity, seriousness, and conscientiousness. The potential involuntional melancholic carries a heavy burden with his stern moral code, many consequent restrictions of his instinctual life(32). He shows an out-spoken compulsive character of an especially rigid nature, whose defensive system fails in the climacteric period(16). The premelancholic state or "mild melancholia" may resemble a schizophrenic depression, with feelings of sadness and the constant seeking of self-reassurances. Habitual interests may decrease, amusement and work may lessen, and the future is full of ominous threats. The prepsychotic history presents an oppressive superego, oral regression; aggression toward the hated object-subject now turns within, with self-reproaches for guilt and sinfulness. Sex or personal enjoyment is considered as evil to be avoided, curbed, castigated against (20).

The most striking personality change is the decreasing plasticity with the resulting unbending and rigid attitudes(10). The structure of the premorbid personality is of the greatest importance in the development of the involuntional melancholia. The interaction of the vulnerable personality and the conditioning factors is usually clearly observed(33). The classical prepsychotic personality shows a distinct triad of obstinacy, parsimony, and perfectionism. "Claustrophrenia" is the worrisome, overconscientious, scrupulous, self-sacrificing, self-abnegating personality(14).

An early warning sign is the development of persistent hypochondriacal trends, such as restlessness, irritability, impulsive anger,

suspiciousness, intolerance, obsessions and compulsions, insecurity, inability to sleep, anxiety, inadequacy. Fear of the future and of impending dissolution complete the picture of nascent melancholia. The involuntional crisis is the culmination of a life-long process of a distinctly obsessional character.

Involuntional melancholia is more frequently seen in married groups than in the single, divorced, or widowed. Patients in our series were rigid, anal-erotic, chronic pill takers with many gastrointestinal complaints and trick diets. They were children who failed to make good heterosexual adjustments, who felt insecurity at home, and who were taught by excessively thrifty parents. Never comfortable, they were always building bulwarks and excuses for their inadequacies and inefficiencies. Always conscientious, dull with no sense of humor, wrapped up in work, they were fussy, meticulous about minor matters, thinking always of themselves with no capacity for great affection. Poor in philosophy and abstract thinking, with no capacity for imagery, they showed narrow interests in the family and job. They are the hoarders, the obsessive-compulsive, the chain cigarette smokers, with no "bad habits." They are the prudish, the very religious, narrow-minded, fearful of change, craving for routine, and showing marked preoccupation with alimentation.

The melancholic illness is precipitated when parents or mates die, or when sons and daughters leave home, and when there are no other interests left. Some active men become broken with melancholia, often to the point of suicide, after retirement. Their arduous and successful lives may have crowded out the memory of some youthful indiscretion, and removing the protective bodily mechanisms causes the patient to become powerless against depression and guilt (37). There is a vulnerability to psychic trauma, to physical and objective difficulties of health, wealth, reputation, position, and worth; anxiety and fear of the loss of a mate, friends, and loved objects.

In an analysis of 730 consecutive cases of unclassified melancholia, Farquharson (15), in 1894, stated that business anxieties in men and domestic affliction in women con-

stituted the common moral cause. About 1 in 3 recovered spontaneously.

Physiological Factors

About 15% of women present menopausal syndromes and few of these develop psychoses in the involutional period. Many characteristic symptoms of menopause may be incidental to the illness, but most of these are due to a physiological decline. These may be hot flushes, headaches, periods of irritability, weariness and neurodermatological reactions. The climacteric period in males is definite but less marked. The psychic problems of the menopause are largely anxiety neurosis, dependent upon constitutional, psychogenic and physical factors. No psychosis is characteristic of the menopause. What appeared at puberty as growth and maturation is expressed regressively in later life(31).

Many women show the additional features of menopause and ovarian hypofunction in various symptoms. Many are irritable, easily excited, jittery, difficult to please, sleeping poorly, with easy fatigability, constipation, vague pains, obesity, tachycardia, palpitation, excessive perspiration, dyspnea, fear of losing the mind, dryness of skin, genital and anal pruritus, and subjective nervousness (41). As far as is known, there is no mental illness that is due exclusively to glandular afuction or dysfunction(31). Gibson(18) states that in involutional melancholia there is always present a variety of factors including a definite physical makeup, a hereditary weakness, an endocrine upset, unhelpful personality trends, and other physical and psychical conditions.

Van der Horst(40), in 1929, stated that all involutional cases showed 3 elements in their pathogenesis: (1) mental changes caused by physical processes of involution; (2) psychological reactions to somatic changes; (3) psychological reactions to social and personal changes of this period.

Psychopathology

Schultz(36), in 1930, spoke of the finality in the psychology of all involutional depressions, the person finding himself facing irreversible problems. Bond(4), in 1935, in his "low power microscope method" found

very powerful and clearly perceptible motives reaching back many years. Pearson comments on "reactivation of early infantile situations." Individuals may react psychopathologically to life's situations. Frequent symptoms of confusion and bewilderment and perplexity color the varied depressions. Hallucinatory and delusional projections occur readily in the setting of insecurity, guilt, anxiety, and depression. Mild and marked sexual aberrations may occur. Feelings of hopelessness, futility, and humiliation are common. The sexual interest often is displaced to the anal region.

Yaskin(44) believes the psychopathology is closely related to the psychology of senescence, that it represents a regression to "the primary subjective phase" invoking a minimum of mental effort (death) and autoeroticism, the preoccupation with bodily functions. The anxieties in these cases are an appropriate reaction to the delusions derived from ego instinctive motivations related to the death wishes and death apprehensions. Lorand(26) remarks that the ego is lacking in the power of synthesis, and so is unable to withstand the onslaught of the superego.

In the states known as melancholia, lypemania, and hypochondria, we find alterations of personality ranging through all possible degrees, including a complete metamorphosis. The patients become insensible to everything. They are without affection, can no longer weep, and only their own sufferings move them. By degrees these pathological states become systematized to form a false conception, toward which everything converges. There may be a great weight loss during the depressive period(34).

We find in our series that the true melancholic seldom complains of depression. He complains of having sinned, being damned eternally. Any evil in the world is centered in this sick patient. Suicidal impulses must be reckoned with constantly. Outside interests and love capacity are lost and normal activities inhibited. Self-reproaches may culminate in delusional need for punishment. The delusional ideas are not fantastic but well ordered and systematized, although based upon facts which are inadequate or irrelevant to the delusional structures. Hal-

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lucinations also may occur without evidence of any organic intellectual defects(28).

Involuntional melancholia may be associated with organic lesions as cerebral tumors, disseminated sclerosis, Alzheimer's disease, Korsakoff's psychosis, cerebral arteriosclerosis, syphilis, diabetes, osteoarthritis, drug addiction, hypertension, hypothyroidism, and other glandular disturbances, myasthenia gravis, delirium tremens, pernicious anemia, and cardio-renal disease.

CONVULSIVE THERAPY OF INVOLUTIONAL MELANCHOLIA

Machines and Medications

The classical electric machine (Rahm) has been used as well as the brief stimulus machine which was developed at this Institute under the research direction of Dr. W. T. Liberson. The voltage ranges in the Rahm machine from 70 to 120 volts with a total stimulation time of 0.2 to 0.4 seconds. The average milliamperage of the brief stimulus machine is from 25 to 35 milliamperes with a peak of 350 to 450 milliamperes. The pulse duration is of 0.7 milliseconds and the total stimulation time is 1.3 seconds.

Metrazol is also employed, given quickly in intravenous doses of 5 to 8 cc., usually not exceeding a total of 15 cc. when repeat injections are needed to produce a convulsion. Every effort is made to reach the convulsive threshold and maintain it at that level throughout the period of treatment. Curare(22) is used for muscular relaxation and to lessen the severity of convulsions, especially useful in poor skeletal risks. About 1 cc. per 40 pounds of body weight is given slowly, 1 cc. per minute. Examination of the movements of the eyelids, head, and jaw determines the myasthenic effect of the drug prior to the treatment. Prostigmin is constantly available to counteract any unusual effect of the curare, post convulsively.

Pretreatment Examinations

Each patient at the Institute receives a thorough physical, mental, neurological, orthopedic, otologic, and allergic examination together with complete laboratory blood and urine tests plus routine x-rays of the skull and chest. A basal metabolism, an

electrocardiogram, and an electroencephalogram are also given. The department of educational therapy carries out doctors' prescriptions along vocational, avocational, social, and recreational lines to better fit these patients for life in society. Various psychological tests are given as requested by the staff medical officers. Further aspects of treatment are determined after staff evaluation of the individual cases. Every candidate for convulsive therapy receives a preshock spine x-ray in order to evaluate any previous spine injury or act as control for the treatment to follow.

Contraindications

Convulsive therapy must be used with discrimination because of the high incidence of cardiovascular disease in this involuntional age group, the increased fragility of bones, and the usual state of malnutrition. Associated organic diseases of the brain are contraindications.

Bianchi and Chiarello(3) present the following as contraindications for convulsive therapy:

- (1) Tuberculosis, active or latent.
- (2) Cardiac conditions, particularly those with decompensation.
- (3) Febrile conditions.
- (4) Cases with head injury history.
- (5) Postembolic cases.
- (6) Marked skeletal deformities.
- (7) Recent fractures.
- (8) Severe types of hernias or prolapses, rectal or uterine.

Immediate Preshock Care

The patient does not receive breakfast. In the shock department he is prepared for treatment by a team of one nurse, two or more attendants, and one or two staff physicians. False teeth, bridges, or partial plates are carefully inspected and, if possible, removed. Gum and other chewing substances are removed. The guest lies on a stiff bed mattress reinforced with a flat plywood board. A thick canvas roll pillow is placed across the back just under the lower angles of the scapulas. The back is hyperextended, a gag of spongy rubber or gauze is carefully placed between the teeth or lips. The jaw,

shoulders, and hips are firmly but elastically held during the treatment. Male and female patients are treated in separate groups.

The electrodes are usually placed over the temples between the ears and the eyes, the lower edges of the zygomatic bones forming the lower tangents. The electrodes may also be placed one temporally and one in vertex position (brief stimulus technique). When desired to relieve anxiety, sodium amytal, pentothal, and barbital preparations may be given prior to treatment. It is very important to have an oxygen-carbon dioxide inhalation apparatus available together with ampoules of adrenalin and caffeine-sodium benzoate, airways, a suction apparatus, and tongue retractors, in case of difficulties after treatment including severe drops in blood pressure and pulse, and respiratory spasms.

Complications

Lowinger and Huddleson(27) sum up the complications as follows: Those due to action of current on the brain tissue, such as punctate hemorrhages as well as foci of edema and necrosis in cortex, cerebellum, basal ganglia, and medulla; also ischemic degeneration of ganglion cells, with proliferation of all glial elements, memory impairments, and intellectual deterioration. Those appearing in the skeletal and cardio-respiratory systems as by-products of the convulsion, as fractures and compressions and dislocations of the jaw and shoulder. Long bones seldom fracture while compression fractures of vertebral bodies are common. The femur, acetabulum, scapula, ribs, and vertebral processes are rarely fractured. These compressions have no clinical significance, offer no threat to the spinal cord, and do not interfere with heavy muscular effort. Evans(13) reports a complete transverse fracture of the surgical neck of the humerus in generalized osteoporosis. Other sources report fractures of the anatomical neck of the humerus and the clavicle.

Other complications may be reactivation of old tubercular cases, cardiovascular accidents, activation of latent epilepsy, and pulmonary emboli. Respiration paralysis with glottis cramps may need artificial respiration and medical stimulation. The Ziskinds(45) present an analysis of complica-

tions with metrazol therapy: clinical fractures, 6%; subclinical fractures of the spine, 31%.

Postshock x-rays of the spine are taken if there are any complaints of back pain following treatment. If vertebral compressions are present, treatment is either stopped entirely or suspended.

In the 1945-47 series, 162 preshock spine examinations were done. Of these, 113 patients received convulsive therapy. The total number of fractures after treatment was 8: of the spine, 4, location D3 to D6; of the extremities, 4, of which 3 were of the humerus and 1 of the scapula. The total number of old fractures prior to treatment was 12. Postshock x-rays of the spine were not done routinely but only in the presence of cervical or other vertebral symptoms.

Associated Therapy

Adjuncts to convulsive therapy are varied, including hydrotherapy and physiotherapy. Many additions to the treatment of involutional melancholia have been advocated and employed with different results and criticisms. Estrogenic treatment of the simple type has been of some value. Davidoff, Reifenstein, and Goodstone(8) claim the usefulness of diethyl stilbestrol. Therapy may be specific in psychosis reasonably ascribed to estrogenic deficiency(5). In another series of 100 involutional melancholics, 58% apparently benefited from estrogenic therapy with 10 recovered with full remissions, 21 much improved, 27 with slight improvement, and 42 with no change(6).

THERAPEUTIC RESULTS

Previous Reports: Rate of Recovery

Table 2 summarizes the rates of recovery and improvement reported by different workers. The highest percentage of recovery reported was 80%; the lowest, 50%, being with metrazol in 1940 (Menninger Clinic (29)). The effect of age was studied by the Ziskinds(46), by Kino and Thorpe(24), and by Davidoff and Raffaele(7). It was found that senile melancholics present lower recovery rates than involutional melancholics and that the younger the person, the better the response. Davidoff and Raffaele found that the longer the period of illness prior

to treatment, the worse the prognosis. Bianchi and Chiarello(3) state that the best prognosis could be expected in those whose symptoms had existed less than 2 years prior to treatment. Drobnes(12) reported 45% recovered in cases with a high percentage of family mental illness. In this series the introverted prepsychotic showed the better prognosis.

proved with convulsive therapy. In 1937-40, hospital days were 66.4 while in 1941-42 they were only 39.9 days. Worthing, Bigelow, Binzley, and Brill(43) have shown over a 2-year period that those treated needed about one-third less days of hospital care than the untreated cases. In a 3-year survey of electric shock, the average number of treatments for involutional psychoses was 11.

TABLE 2

RESULTS OF CONVULSIVE THERAPY IN INVOLUTIONAL MELANCHOLIA AS COMPILED FROM THE PUBLICATIONS OF VARIOUS WORKERS

Author	Year	Recovered %	Recovered and Improved %	Failures %
Menninger ¹	1945	50.0	75.0	25.0
Fitzgerald	1943	78.0	...	10.0
Kalinowsky	1943	...	86.6	13.4
Henderson	1943	64.0	...	...
Gross	1943	...	80.0	20.0
Davidoff and Raffaele	1943	...	77.0	23.0
Bennett and Wilbur ²	1944	...	90.0	10.0
Bianchi and Chiarello	1944	...	66.0	34.0
Tillotson and Sulzbach	1945	...	80.0	20.0
Ziskinds ³	1945	81.0	...	...
Ziskinds ³	1945	62.0	...	...
Ziskinds ⁴	1945	56.0	...	...
Kino and Thorpe	1946	80.0	...	...

¹ With metrazol.

² Under 50 years of age.

³ Over 50 years of age.

⁴ Over 60 years of age.

⁵ Depressed.

In comparing treated and untreated cases, Tillotson and Sulzbach(38) found 80% improved with electric shock as compared with 50% untreated. Bennett and Wilbur(2) found 40-50% improved in untreated involutional depression as compared with 90% in those treated with convulsive therapy. Dedichen(9) reported remissions considerably greater in shock-treated than in untreated cases.

Previous Reports: Duration of Illness

Tillotson and Sulzbach(38) stated that the duration of illness is 75-90% less with than without convulsive therapy. In the Bianchi and Chiarello(3) series, 55.8% of treated patients were in the hospital less than 6 months and 86.2% less than 1 year. According to Bennett and Wilbur(2), spontaneous recovery occurs within 9 months in 40-50% of true involutional depression. They report 90% of depressed patients im-

Present Study

Table 3 summarizes the results concerning the rate of recovery and improvement respectively in treated and untreated patients. The average duration of the hospital stay in untreated patients was 1½ years, while it was 6 months in treated patients.

The exact status of the patient upon discharge is determined by the entire medical staff of the Institute of Living. At present, by "recovery" is meant a disappearance of psychotic symptoms whereby the guests are fit to resume their former work or normal occupations. However, the criteria of recovery were more strict in 1935-37 insofar as more insight into his illness was demanded of the patient as a sign of recovery. By "improvement" is meant a partial remission of symptoms. By "stationary" is meant no improvement, or failures with little or no change, these either remaining in the Institute or entering another mental hospital.

TABLE 3

COMPARISON OF THERAPEUTIC RESULTS IN INVOLUTIONAL PSYCHOSES WITH AND WITHOUT CONVULSIVE THERAPY (PRESENT STUDY)

Series	Diagnostic group	Total No.	Recovered %	Recovered and Improved %	Failures %
1935-37 (without ECT).....	Involutional melancholia	50	30	92	8
	Total involutional	61	24.5	91.7	8.3
1945-47 (with ECT).....	Involutional melancholia	203	62.5	90.0	10.0
	Total involutional	347	57.6	88.1	11.8

CONCLUSIONS

Results of 61 involutional cases discharged from the Institute of Living, 1935-37, prior to convulsive therapy, are compared with those of 347 involutional cases treated with convulsive therapy between 1945 and 1947. The average number of electric treatments for melancholia cases was 10.8; for paranoid cases, 16.2; for mixed cases, 11.8. In both series of preshock and shock eras, the patients benefited from estrogen therapy and the reeducational and vocational programs, the latter with progressively increased facilities.

The average duration of hospital stay was 1½ years in the preshock era as compared to 6 months with convulsive therapy.

The combined percentage of patients recovered and improved was essentially the same in both series (92% in 1935-37 and 90% in 1945-47). However, in the preshock era, 30% of melancholia cases were considered as recovered as compared to 62.5% of those receiving convulsive therapy; 62% were considered as improved as compared to 27.5% with convulsive therapy. The criteria of recovery not being the same in both series, these latter figures cannot be compared without reservation. However, even allowing for the difference in criteria of what constitutes recovered, there is material evidence to indicate that the shock-treated group left the Institute in better condition than the nonshock group. On the other hand, there is conclusive evidence that the length of stay in the combined recovered and improved group was materially shortened. The nonshock-treated group remained in the Institute on an average of 3 times as long as the shock-treated group. This difference in the length of hospitalization can hardly be ac-

counted for by the improved and increased ancillary therapies which had undergone considerable development with the shock-treated group.

I wish to acknowledge the encouragement and assistance of Dr. C. C. Burlingame and Dr. W. T. Liberson in making available much of the necessary material for this study.

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RETROSPECTION ON PART OF THE ALEUTIAN CAMPAIGN¹

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In another report(1) Burns described the psychiatric disorders in an Aleutian post and emphasized the importance of the climate and monotony.

The purpose of this paper is to describe the conditions and problems of soldiers in an isolated, noncombatant setting. It is based on experience gained over a 13-month period on one Aleutian island as a neuropsychiatrist, and includes service for 8 months as a battalion surgeon for 3 different battalions. The population varied between 13,000 and 4,000. The experience in the Aleutians was in marked contrast to that on the mainland of Alaska as a neuropsychiatrist for 6 months. At this latter station, the men also did not have the probability of combat; but there was some civilization, decent weather, sports, liquor, women, hunting, fishing, and opportunity for travel. Very few of these were to be found in the Aleutians.

Climate: The weather was always the same: rain, cold, fog, and wind (frequently reaching the rate of 50 to 80 miles per hour). The sun was rarely seen. The "horizontal" rain made walking backwards an accepted method of travel. Fine volcanic sand was mixed with the wet wind, resulting in irritation to the exposed parts of the body, and dirt that could not be eliminated from clothes and living quarters.

Food.—The supply and distribution of food was administered fairly well, after a discouraging start. There was a continual shortage of fresh fruits and vegetables. Ships rarely arrived more frequently than every 30 days; all too often the food cargo was either already spoiled (and was discarded), or had reached such a state of decay that a forced issue was ordered (all fruit and vegetables to be consumed within 2 to 3 days). In spite of the good mess halls, and hot food, the shortage of fruit and

vegetables resulted in dissatisfaction. An ample supply of multi-vitamin capsules was made available in each mess hall for those soldiers who desired them. It seemed that the compulsory ingestion of vitamin capsules led to considerable doubts and fears about the food.

Clothing.—It was only after combat on Attu that the soldiers received adequate clothing. Later, the climate and boredom made the Aleutian soldier lose all interest in having a neat appearance. These men were probably the dirtiest and sloppiest non-combat troops in the Army. Military discipline plus adequate laundry and dry cleaning facilities are necessary to help eliminate this reaction.

Water.—Strangely enough, there was far more discontent about the water than the food and lack of sunshine. At least 50% of the troops believed that the water, because of "lack of minerals," would lead to "softening of the bones" and dental decay. The source of this myth was never ascertained. Explanation about the mountain source of the water, constant medical corps examination of the water, dental statistics, and reassurance did not destroy this legend.

Shelter.—The Pacific or Quonset huts were adequate, except for the lack of privacy. The men displayed considerable ingenuity in providing for their quarters and some pride in maintaining them. Unfortunately, units were often moved from one area to another, without any apparent military necessity and without explanation to the men. Moreover, the fuel oil supply was frequently too far from the huts.

Latrines.—One must have considerable incentive and fortitude to put on boots, clothing, heavy parka, then walk 100 yards in the wind and rain, in order to empty the bladder, or take a shower, or clean the teeth. It is recommended that adequate facilities be provided and at a reasonably close distance to living quarters.

Recreation.—Unit facilities were not sufficient. The huge centrally located gymna-

¹ The opinions presented are those of the author and do not represent those of the Medical Department of the United States Army.

² Major M. C., O. R. C., A. U. S.

sium was tremendously popular. The grateful response to the opportunity for bowling, boxing, basketball, pool, volley ball, hand ball, exercise rooms, sun lamps, and other provisions for exercise and sport, demonstrated the widespread concern about physical health. Unfortunately, some soldiers were prevented from using the gymnasium to the fullest extent because of lack of transportation. Every northern military station should have at least one gymnasium. The worse the climate, the larger and more fully equipped the gymnasium should be.

Entertainment.—A local radio station, a daily newspaper, and theatres provided the usual entertainment. The participation of local talent on radio programs could have been encouraged to a greater degree. The excellent newspaper was eagerly studied by practically every soldier. The movies never caused any great reaction—even those films showing seminude girls, drinking, huge cars, and caressing. The men took great pride in the fact that they saw many pictures before these films were shown in the United States.

The selection of U.S.O. shows for the Aleutians was poor. Most shows had inferior performers and too often included homosexuals and prostitutes. Moreover, the feminine players spent too much time socializing with officers only. Many entertainers caused a lowering of morale because of a poor performance, inferior talent, homosexuality, prostitution, and failure to associate with enlisted men. Very few famous artists visited the Aleutians.

Education.—The "Bering Institute," which provided optional courses in a wide variety of subjects, was well attended. The teachers volunteered their services. The courses depended upon both the available instructors and the desires of groups of soldiers. For example, courses were given in economics, mathematics, bookkeeping and accounting, philosophy, and music appreciation. Each military station undoubtedly has some men capable of presenting courses in which a surprisingly large number of soldiers are interested.

Mail and Censorship.—Air mail service was greatly appreciated. The men understood that it was impossible to bring home-

town newspapers by air so that there were few protests about receiving newspapers 6 to 8 weeks late. The rather foolish regulations about sending gifts home met with some disfavor. The soldiers were not permitted to send home items that were on the scarce list in the United States. For men who were not conquering heroes, who never received any publicity, who had no souvenirs, the regulations preventing the shipment of goods home seemed far too rigid.

Liquor.—The policy which permitted a liquor ration for officers only was deeply resented. The supply of beer for enlisted men was far too uncertain, owing to the infrequent arrival of ships. A number of amazing stills produced some horrible alcoholic beverages. Bootlegging of local products, as well as rationed and unrationed liquor, was far too common. Every attempt must be made to eliminate bootlegging. Preferential allotment of liquor does not raise the morale of officers and lowers the morale of enlisted men.

Drugs.—Some soldiers brought their own supply of marihuana cigarettes. It was rumored that some soldiers unsuccessfully tried to grow marihuana. Liquor and marihuana were frequently sold by a few unscrupulous members of the Merchant Marine. Occasionally, some soldiers attempted to buy barbiturates from medical attendants. So long as the routine precautions were constantly applied, the use of drugs was not a problem.

Sex.—For unknown reasons, the myth that prolonged heterosexual abstinence would lead to impotency (expressed as "drying up") was prevalent. Also, many men feared that they would become homosexuals because of continued abstinence from sexual intercourse. These fears, which could have been greatly minimized by informative lectures while troops were in the United States, were inadequately allayed by explanation and reassurance. The dread of impending homosexuality was frequently due to guilt over masturbation or childhood indulgence in homosexuality.

Overt homosexuals were found in groups—at least one group on each island in the Aleutians. Most nondeviants seemed to have a "live and let live" attitude. Yet, the presence of homosexuality did raise doubts and

fears about one's own sexuality in the minds of many men. Every attempt should be made to eliminate homosexuals before embarkation to an isolated area. After arrival, it is doubtful if morale is served by evacuating homosexuals. It must be remembered that the departure of a man, for any reason, is viewed with great resentment. Each man seems to identify himself with the person who is fortunate enough to go back to the United States, regardless of cause. Intercourse per ano, alleged or confirmed, was very rare. Only 2 occurrences were confirmed—one by a homosexual, attacked by 3 men, and another by a mental deficient, seduced by a psychopath.

Medical Care.—Army doctors should demonstrate a genuine interest in the soldier as an individual. The number of men on sick call was far lower where the unit surgeon was friendly, understanding, and willing to listen. The doctor who was alcoholic, unclean, gruff, or disinterested was resented. The men seemed to expect the same attention which they had been accustomed to receive in civilian life. For example, the practice of having a soldier come back in the afternoon for a more thorough examination raised confidence and morale. The surprisingly low psychiatric casualty rate in the Aleutians was due to the skill and art of medicine practised by the unit surgeons. These men listened to complaints, made thorough examinations, used the hospitals for consultations and laboratory tests, and offered simple explanations.

The medical staff should be prepared to meet any mass anxiety in its early stages. For example, the number of cardiac complaints increased tremendously on the day following the sudden death of a soldier from a coronary occlusion. Each complaining soldier had his pulse checked before and after exercise, his blood pressure was checked, and his heart was percussed and auscultated—then he was given a positive statement that his heart was functioning perfectly well. A few required more reassurance; this took the form of a superficial explanation about coronary artery disease. Particular care was taken that a soldier was not told, "You have a murmur, but it means nothing," or "Take it easy." Most important is the fact that each soldier was

sympathetically listened to, and then thoroughly examined.

Should nurses be assigned to hospitals on isolated outposts? Nursing duties have been adequately performed by medical corps men. Rumors about nurses, almost always untrue, were common among men. The nurses justifiably complained that their primary function was to entertain officers rather than work in the hospital.

A number of military psychiatric casualties occurred because of the ill efforts of doctors untrained in psychiatry. Psychiatry certainly must be oriented to the field of reference in which it is being used. Apathy, indifference, lack of initiative, vague anxiety, bizarre physical complaints, preoccupation with sexual ideas, all became part of the general cultural pattern in lonely military posts where there are very few physical and emotional outlets. Battalion surgeons soon discovered that the soldiers showed an excellent response to friendly interests, sympathetic listening, careful examination, simple explanations given in an authoritative manner, and reassurance of the relative normality and frequency of certain doubts, fears, and complaints.

It is true that unsolicited propaganda in cartoons and from the radio station led to the feeling that it was a discredit to the soldier and to his unit to be admitted to the "psycho" ward. This did not work in reverse; there were no suicides or attempted suicides on the island. The pressure on the doctors to use medical channels for the disposition of administrative problems was very great.

Rotation.—The most bitter criticism was directed toward the failure of the authorities to formulate and follow a definite policy for rotation. There was never an answer to the constant question, "When am I going home?" The men were willing to accept the plan to 24 or even 30 months tour of duty so long as a definite policy was established. Other criticisms included (1) failure to get a temporary tour of duty or furlough to Alaska, and (2) failure to send men from Alaska to the Aleutians. Even when the long awaited time arrived (sometimes after 26 or 30 months on the island), the men had a legitimate complaint because they were moved from their own outfits to the staging

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area—then waited 4 to 8 weeks for transportation back to the United States. Also, new arrivals were separated from their fellow soldiers by individual assignment to different units, rather than assignment as a complete unit.

It is urged that soldiers in isolated outposts know, so far as is possible, how long they will be assigned to that station. The importance of such a plan cannot be overemphasized. If possible, deserving soldiers should be given an opportunity to have a furlough or temporary assignment in civilization (say, at the end of 12 or 18 months). Departing soldiers should stay in their own "homes" until they leave for the United States. Groups of newly arrived soldiers should be assigned as units.

Civilians.—The War Department made a deplorable error in hiring hundreds to thousands of civilian male employees for each Aleutian island. These civilians received huge salaries for doing work that soldiers could do, or (still worse) were doing. The presence of these men, irrespective of age or draft status, had a devastating effect on morale.

Training.—Sporadic attempts at military training met with failure. The men resented the fact that the officers who ordered them to string a strand of barbed wire, or dig dummy gun emplacements in a wet and freezing wind, rarely came to the Aleutians or came only for a short time. The soldiers felt that they were never praised, that their efforts were not appreciated, and that their unique problems were not understood.

Morale and Discipline.—The entire program should be aimed at maintaining morale and discipline. The barriers of military secrecy are usually not so great that the men cannot be told the following before embarkation: their mission, the probable duration of their tour of duty, the climate, housing conditions, facilities for recreation.

They should be told what will be lacking and what will be done to make their stay as pleasant as possible. Informative lectures about protection from the elements, the training program, general medicine, and mental hygiene are advisable. A sincere attempt should be made to answer questions and give reassurance before leaving isolation.

During the stay at the outpost, a total program for continually aiding the better adjustment of the men should be planned, expanded, and effected.

What part can a military neuropsychiatrist play in helping to formulate and carry through a constructive program for the soldiers? First, he must be certain that the command realizes that there is a need for a plan geared to the emotional problems of soldiers. The command is surprisingly sensitive to the sick call rate, the number of absences without leave, the number of courts martial. A constructive plan to reduce the incidence of these problems will almost always be eagerly received. Second, the parts of the program must be optional, not ordered. All too frequently, a worth-while project fails because the men are ordered to participate; the resulting resistance is very difficult to overcome. The men who are eager to start a discussion group, or a music appreciation series, or some educational courses, can be encouraged by unit commissioned and noncommissioned officers. The radio station can use local talent for entertainment and dramatics instead of continuous recordings. The neuropsychiatrist must be not only the therapist for ill soldiers but also an adviser and consultant in practical problems of morale.

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PSYCHIATRY IN SWITZERLAND¹

ZÜRICH, BASEL, BERN

ROBERT A. CLARK, M. D., PITTSBURGH, PA.

Switzerland is the only country on the continent of Europe, except Sweden and Portugal, that has not suffered severely from war in recent years, and which is therefore in that respect comparable to the United States. Its area is less than that of Pennsylvania, its population under 4½ million people. It is divided into 25 cantons, from the largest, Bern, with 750,000 people, to the smallest, with about 13,000. Each canton is responsible for its own mentally ill. Patients come from both modern cities and remote mountain valleys where many customs and folk-lore of 500 years ago still persist. Here are 4 languages—German, French, Italian, and Romanisch—with numerous dialects.

For a country of its size, the number of centers for psychiatric training in Switzerland is remarkable. Each large city has its own university and psychiatric teaching hospital. These include the Universities of Zürich, Basel, Bern, Lausanne, and Geneva. The clinical training of medical students, residents, nurses, and social workers is carried on in cantonal mental hospitals as well as at the university outpatient clinics. The superintendents of the mental hospitals in the cities mentioned are professors of psychiatry.

Cantonal psychiatric activities in the city of Zürich center around the Heilanstalt Burghölzli. In past years under the direction of Griesinger, Huguenin, Hitzig, August Forel, Eugen Bleuler and Hans W. Maier, it is now in the competent charge of Prof. Manfred Bleuler. The hospital, primarily intended for the acutely ill, has 570 beds. The number of admissions is the largest for any mental institution in the country—over 1,000 annually. Many of the chronically ill are transferred to other institutions both public and private, including the other can-

tonal mental hospital of the canton Zürich, at Rheinau. The staff includes 21 physicians, 185 nurses and attendants, 3 social workers, and a clinical psychologist. There is a training school for nurses. A beautiful new building for occupational therapy was opened Oct. 1, 1947. Treatments include fever therapy, narcosis therapy (Dauerschlaf), insulin and electroshock, metrazol shock, and prefrontal lobotomy. Twenty of the last were performed in 1947, limited to patients who had been ill for several years. The laboratory not only carries on the determinations usual for a busy institution, but also performs many spinal fluid examinations for other hospitals and practitioners. An electroencephalograph has been in use since 1948. Psychotherapy is given whenever time permits, often with the advice of one of the two consulting psychoanalysts. Both clinical and physiological research projects are encouraged. A monograph recently appeared by Dr. Bleuler on endocrine factors in certain cases of schizophrenia. As he described them recently at a meeting of medical practitioners in Zürich, Dr. Bleuler's administrative problems should have a familiar ring in American ears: too few beds, too high a proportion of the chronically ill, too rapid a turnover among nurses and attendants. He and other Swiss psychiatrists are sponsoring new legislation in the federal parliament for the admission and release of patients to and from mental hospitals.

Under the direction of Dr. Bleuler's chief assistant, Prof. Glaus, the University Polyclinic for Psychiatry was in 1947 restored to its prewar level of activity. Over 1,900 patients were seen in that year, of whom 1,300 were new ones. Child psychiatry in Zürich is under cantonal direction, with teaching and research conducted by the staff of the university clinic. Children and adolescents may stay for observation at the Kinderheim Brüschnhalde Männedorf (capacity, 25), under the charge of a psychiatrist. Psychiatric interviews are carried on at the Polyclinic for Children and Youth. Since 1946 branch

¹The writer is indebted to Drs. Bleuler, Staehelin, Klaesi, and Storch and their staffs for their hospitality, and to Dr. George H. Stevenson, chairman of the Committee on International Relationships, for his encouragement.

clinics have been held in the nearby town of Winterthur and the village of Rüti.

Private practitioners of psychiatry in Zürich include nonanalytical neuropsychiatrists, Freudian psychoanalysts, and Jungian analytical psychologists. Analytical training is not so popular among younger physicians as in the United States. Among physicians in private practice the best known is of course Dr. Jung himself. Despite his years, he is still active, seeing a number of patients, interviewing students from the Institute, attending lectures, and writing. At present he is busy revising his works in preparation for the first complete English edition. Dr. C. A. Meier is vice-president of the Curatorium (Board of Directors) of the Institute, as well as of the Swiss Society for Practical Psychology. Dr. Kurt Binswanger is honorary treasurer of the Curatorium. Both give seminars at the Institute. The pioneer psychoanalyst, Dr. Alphonse Maeder, who followed Jung when the Zürich group broke with Freud in 1913, is now primarily interested in the cooperation of psychiatrists and the Protestant ministry. This year he published a book, "Selbsterhaltung und Selbstheilung,"² which should interest American psychotherapists. Though not a doctor of medicine, Dr. Oskar Pfister is a pioneer psychoanalyst also interested in the relations of religion and psychotherapy. The inventor of the well-known projection technique, Dr. L. Szondi, formerly of Budapest, now practices in Zürich. He has applied his test to mental patients at the cantonal mental hospital at Solothurn, and has recently published a book entitled "Schicksalsanalyse" in which he sets forth his theories concerning the "family unconscious," intermediate between, he believes, the personal unconscious of Freud and the collective unconscious of Jung.

Adjoining the French border is the Klinik Friedmatt, the cantonal mental hospital in the city of Basel and the psychiatric teaching hospital for the University. The director is Prof. Dr. J. Staehelin. The hospital's 500 patients are divided into 1st, 2nd, and 3rd classes, with appropriate accommodations relative to the amounts charged. All receive the same variety of treatments as given at

Burghölzli. In addition to the usual occupational therapy, some patients were making simple electrical apparatus, on contract to a private manufacturer. This is the general custom in Swiss cantonal hospitals. Psychotherapy here does not lean toward the theories of any one school, but is eclectic. Patients who might benefit from farm work are sent to another institution in the neighboring separate canton of Basel-Land. Dr. Staehelin was especially proud of the large proportion of his patients who had freedom of the grounds or privileges for visits to their homes or to the city. Research is mainly concerned with physiology. The liver function of schizophrenics was being investigated at the time of the writer's visit, as well as the metabolic functions in patients with insomnia. The Klinik Friedmatt has its own training school for nurses, holds clinics for medical students, and conducts courses for psychiatric residents and social workers.

At the International Congress of Mental Health in August 1948, Dr. Heinrich Meng of the University of Basel was introduced as the only Professor of Mental Hygiene in the world. Prof. Dr. Meng, a psychoanalyst, formerly a resident of Frankfort-on-Main, has lived in Basel for many years. He has a library for his students of approximately 3,000 volumes on mental hygiene, psychoanalysis, and related subjects. The writer was hospitably invited to attend a lecture and a seminar session given by Dr. Meng in the beautiful new lecture halls at the university. Both were well attended by undergraduates, teachers, and theological students. The seminar dealt that evening with group psychotherapy in Great Britain and the United States. Dr. Meng is the author of a number of books and articles on mental hygiene, criminology, and on the psychology of international tensions.

A man of great energy and cordiality is Prof. Dr. Jakob Klaesi, director of Waldau, the cantonal mental hospital just outside Bern. He is also the Professor of Psychiatry at the University of Bern, and is well known throughout the world as the originator of "Dauerschlaf" or prolonged narcosis therapy. He and Dr. Maurice Rémy, his chief assistant, described to the writer their use of this treatment for the withdrawal symptoms in morphinism, using *drops* of

² "Self-Preservation and Self-Healing." Rascher-Verlag, Zürich, 1949.

somnifain, rather than injections. They believe narcosis therapy is not complete without adequate psychotherapy. Physiological research is being carried on there in a well-equipped laboratory endowed by the Rockefeller Foundation. One subject being investigated is the use of Parpanit (d-ethyl cyclopropane) in Parkinsonism, and as a substitute for curare during electroshock treatment.³

A visit was paid to the cantonal mental hospital at Münsingen principally to see Dr. Alfred Storch, well known in the United States by virtue of his monograph, "Primitive and Archaic Forms of Thought in Schizophrenia." The director of this institution, which is a few miles south of Bern, is Prof. Dr. Max Müller, also of the University of Bern. For the past 6 months he has had an interesting experiment in international psychiatry at his hospital, namely, the training of psychiatrists from Germany in the latest methods of treatment, in groups of 3 or 4 for 3-month periods. Dr. Storch has been a member of his staff since he left Germany in 1933. At present he is mainly concerned with applying the philosophy of existentialism to the psychopathology of schizophrenia. A recent article of his in the *Swiss Archives of Neurology and Psychiatry* (vol. 59, p. 330, 1947) entitled "Die Daseinsfrage der Schizophrenen" (The Question of Existence in Schizophrenics) discusses depersonalization and cosmic visions in a case of acute catatonia. This interest in existentialism he shares with Dr. Ludwig Binswanger, the director of a well-known private psychiatric hospital at Kreuzlingen, canton Thurgau. This theory of psychopathology has, to the writer's knowledge, received little, if any, attention in the United States. Dr. Binswanger published a monograph as early as 1933 concerning it: "Ueber Ideenflucht" (On Flight of Ideas, Orell Füssli Verlag, Zürich), dealing primarily with manic disorders.

In general, it can be said that standards of treatment, care, and professional training in the hospitals described are high. The types of patients seem to be very similar to those seen in the United States. In Zürich, for example, alcoholism is at least as great a problem as with us, with many cases of

delirium tremens. There is considerable paresis, but, in Dr. Bleuler's opinion, less proportionately than in the U. S. A. The functional disorders occur in comparable proportions. The general approach to treatment is physiological, but with considerable interest in psychotherapy, increasing in some quarters. Lobotomies are done less often than in some of our institutions, since they are restricted to the chronically ill.

All the Swiss institutions have excellent libraries. However, they all lack an adequate variety of American psychiatric journals. Some had the *AMERICAN JOURNAL OF PSYCHIATRY*, others the *Journal of Nervous and Mental Diseases*, and the *Archives of Neurology and Psychiatry*, but very little else. A genuine service for international psychiatry would be done by sending sample copies of our leading journals to the directors of these institutions, with letters encouraging them to subscribe. Dr. Klaesi would be happy to exchange subscriptions of the *Monatsschrift* of which he is editor. More could thus be done to acquaint Swiss psychiatrists with the latest developments in North American psychiatry, including research, teaching, and theory. Much interest was shown at the hospitals visited in methods of preventing pneumonia during narcosis therapy which were recently developed in the Western State Psychiatric Institute in Pittsburgh. The possible practical value of this is shown by the fact that at the Klinik Friedmatt this treatment is not given in the winter because during the damp and foggy season upper respiratory infections are so common. Another observation was that the use of benzedrine or methedrine in combination with sodium amytal or pentothal in narcoanalysis is not generally known in the institutions visited. In the other direction, earlier and more complete knowledge of developments in research and theory in Switzerland could be made available in American psychiatric journals. To quote Dr. Bleuler: "Often papers appear in American journals which completely overlook fundamental new work in the European literature."⁴ All this implies that a greater interchange between psychiatrists in Switzerland on the one hand, and the U. S. A. and Canada on the other, would be of mutual benefit.

³ Cf. *Schweizerische Monatsschrift f. Neurol. u. Psychiat.*, vol. 115, 1948. (J. Klaesi, editor).

⁴ Personal communication.

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CASE REPORTS

REPORT OF THREE CASES OF TRIGEMINAL NEURALGIA APPARENTLY CURED BY ELECTROSHOCK THERAPY

EDWARD R. JANJIGIAN, M. D., KINGSTON, PA.

CASE 1.—A well-developed, well-nourished, 51-year-old, married white female had her first attack in 1943. Extensive studies by a Philadelphia neurosurgeon resulted in the diagnosis of trigeminal neuralgia, involving the right maxillary and mandibular branches. An alcohol injection in the summer of 1943 gave relief for approximately 2 months. A second injection in 1944 afforded relief for approximately 6 weeks. In 1945 she returned to Philadelphia, where surgical severance of the sensory roots was recommended. She did not consent to this and returned home. She became rather depressed and expressed suicidal ideas because she was unable to obtain relief.

In April 1947 she received her first electroshock, using the routine technique. She had the typical grand mal type of convulsion. Voltage, 120, AC; duration, 0.2 second. The patient did not keep her next appointment, which was 3 days later. In October 1948 the family doctor reported that since the shock therapy the patient has been in excellent health and has had no recurrence of the neuralgia.

CASE 2.—A 32-year-old, well-developed, well-nourished, rather meticulous, rigid-minded white female school teacher was examined by the writer in June 1947. She presented the typical syndrome of trigeminal neuralgia, involving the maxillary branch, left, fifth nerve.

Onset of the illness was in 1939. She was carefully studied by an otolaryngologist under whose care she remained up to the time of her consultation. She had been under various medicinal treatments, and in addition received alcohol injections approximately every 6 months. On 3 occasions she obtained complete relief from the attacks for periods ranging from 3 to 4 months. The severity and frequency increased from 1946 on. Subsequently, she developed marked tension, anxiety, became despondent, seclusive, and continued to lose weight because she dreaded eating, which usually precipitated neuralgic attacks.

In July 1947 she was given her first electroshock treatment; a second shock was given 5 days later. She canceled the third appointment stating that she felt well and was going back to her teaching job.

Since then, she has had no attacks and is making an excellent social and occupational adjustment.

CASE 3.—A 47-year-old, well-developed, well-nourished white female, married, mother of 3 children, was referred because of marked depression, loss of interest in her environment, and suicidal ideas.

History revealed that in 1942, at the age of 41, shortly after her menopause, she consulted her family doctor because of sudden paroxysmal attacks of pain in right side of face. She was referred to an otolaryngologist who referred her to a neurosurgeon in New York. Periodically until 1947 she visited the surgeon for alcohol injections, which apparently gave her relief, lasting 3 to 3½ months. On Christmas Eve, 1946, she experienced a most severe attack which was relieved only after one grain of morphine was given. She returned to the neurosurgeon in January 1947, at which time she received another alcohol injection. She obtained no relief and was advised that severance of the sensory roots was the only thing left to do. Her family doctor advised her against this procedure.

In September 1947 she received her first electroshock treatment. Voltage, 120 AC; duration 0.2 second. She had the typical grand mal convulsion. The second appointment was not kept, but the following week she called to say that she felt well, and that she did not see the necessity for taking the second treatment. She has been examined several times since and there has been no recurrence of her attacks.

SUMMARY

In these 3 cases of trigeminal neuralgia there was apparent complete disappearance of symptoms, with no recurrences since initial electroshock treatments.

Further studies are necessary before a conclusion can be drawn as to the value of electroshock therapy in treatment of trigeminal neuralgias.

CORRESPONDENCE

PSYCHOSEXUAL FACTORS IN THE PARANOID PHENOMENA

Editor, AMERICAN JOURNAL OF PSYCHIATRY:

SIR: I believe that the evidence presented in "Psychosexual Factors in the Paranoid Phenomena" by Drs. Klein and Horwitz in the March 1949 issue of this JOURNAL is too superficial to contribute to the invalidation of Freud's hypothesis that paranoia is a psychological defense against homosexual strivings.

The "paranoid" symptom constitutes a *fear of sadistic attack upon one's self*. In examining the validity of the concept that paranoia is "nothing else than distorted homosexuality," the distortion sought must necessarily be of a *sadistic* nature. Since the hypothesis postulates paranoia as a *defense* against conscious awareness of homosexual wishes, we must be prepared to find varying degrees of success in the utilization of this defense—ranging from complete unawareness of any homosexual desires to overt homosexual behavior, the latter constituting failure of this defense-mechanism. It should therefore not surprise us that most of these patients showed no *overt* homosexual behavior or thought, since their psychosis arose as a means of preventing precisely such overt, conscious manifestations.

In individuals whose life experiences had encouraged a sadistic concept of interpersonal relationships, any manifestations of sexuality would take the form of sadistic or masochistic wishes, or both. Having been overwhelmed with guilt feelings for their sexual desires since early childhood, these patients handle the guilt by means of the delusion that someone else wants to subject them to sadistic attack, thus accomplishing the two-fold aim of disowning their sadistic sexual desires and receiving punishment for them. The expectation of injury at the hands of another person is a masochistic wish—a homosexual masochistic wish, if the persecutor is of the same sex. (Curiously, the word "sadism" or its derivatives does not appear even once in the entire paper, although there is one sentence where this word would seem to be a "natural," and yet the authors substitute "pain-tinged" in referring

to certain patients' attitude toward sex. Apparently a "scotoma a deux" for the word "sadism.")

One must not be misled by the "manifest content" of psychotic delusions. Just as the manifest content of dreams succeeds in hiding unwelcome thoughts from the dreamer, so the "manifest content" of delusions does the same for the psychotic. One cannot be satisfied with the male psychotic's assertion that he is being pursued by a woman, just as in a dream one cannot overlook whom and what this woman may represent to the individual. The details may reveal that the woman has what the patient regards as masculine traits. Likewise, the patient may have delusions *about himself* which indicate that he regards himself as possessing traits associated in his mind with femininity—*e.g.*, being a "pervert," being a failure in any way, being able to attract another person in a passive manner. Similarly, the paranoid woman may have delusions that she is masculine, so that pursuit by a man cannot be considered as identical with a projected heterosexual wish. The presence or absence of such delusional material (which is quite pertinent to the subject of homosexuality) is not reported by the authors, although they do refer to underlying "fears of being different, incomplete, inferior sexually or even homosexual" in their patients.

With respect to those patients who had been married, it is quite possible that these marriages were a defense against homosexual desires, as witness the not uncommon marriages entered into by nonpsychotic homosexuals who strive to overcome their homosexuality.

It is my feeling that corroboration or refutation of Freud's views on paranoid delusions requires a much more thorough study of such patients' sadomasochistic experiences, fantasies, and delusions, as well as their thought content about masculinity and femininity.

HENRY G. GRAND, M. D.,
New York, N. Y.

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REPLY TO THE FOREGOING

Editor, AMERICAN JOURNAL OF PSYCHIATRY:

SIR: As psychoanalysts we have been interested—as have others—for many years, not only in those cases which demonstrate clearly Freud's brilliant formulation of the paranoid phenomenon but also in those which need careful re-evaluation. As we said: "It (the homosexual conflict) is so obvious in the cases in which it occurs, that the limits of its application are all the more surprising."

That paranoid patients do not usually show overt homosexual behavior or thought is too well documented for any disagreement. Nor does it exclude what we said in our paper: "This does not mean that homosexual strivings are not expressed frequently in reverse or disguised." We are still impressed by the absence of this material, in some cases, at the time of collapse and disorganization, when the defenses are no longer operating successfully in any area, and when one might expect to see evidence of such conflict if it were so important to the individual's emotional economy. Even where this conflictual material is present, it needs careful exploration to understand both its meaning and its importance.

I believe the most important criticism of our paper is that of our seeming acceptance

of the delusional content as an isolated phenomenon. Certainly all delusions can be understood only in terms of the total organismic responses, including symbolization, and in terms of the reactional biography of each patient. They cannot be given much understanding, however, merely by automatically compressing them into a theory.

It is well agreed that varying motives operate in marriage choice. I would still insist, however, that the motives be painstakingly and accurately determined in each case, rather than assumed to exist or assumed reducible to one common denominator in all patients.

Dr. Grand says that more thorough studies are needed to corroborate or refute Freud's views on paranoid delusions. I agree wholeheartedly that such studies are needed, not for those reasons particularly, but for the establishment of scientific method.

Our study, designed to raise questions and not to formulate a new theory, was done because we believe that honest scrutiny of any theory is healthy, may point up inconsistencies for further exploration, is imperative to any discipline, and can be done without rancor.

HENRIETTE R. KLEIN, M. D.,
New York City.

COMMENT

THE PRESIDENT'S MESSAGE

I should like through this page to say to all members what I was able to say in Montreal to only a few. Your designating me to serve as your President during the coming year is a great honor. I am deeply grateful. It is an honor because it carries with it a great responsibility.

Our patients, our professional personnel, and our fellow citizens at large need the combined wisdom found in our Association. Our retiring President was right when he believed that the Association wanted to fulfill its potentialities even though it might mean calling on its financial reserves. The budget which has been approved to meet this obligation was prepared soundly and thoughtfully after days of deliberation and consultation with many of our members.

The Councillors and Officers which you have chosen feel to a man that the honor bestowed upon them can be validated only by serious work. We would like to believe also that the honor of being a member of The American Psychiatric Association needs to be supported by work on behalf of the field if it is to have meaning.

Unfortunately the opportunity to express this effort within The American Psychiatric Association is all too limited. Counting offices, committee places, and participation in the annual meeting, the Association today gives only about 400 places for its members to serve the field as a whole. This is far too scant. Ways must be devised so that all who are so inclined may have their chance to advance psychiatry as a science, as a practice, and as an influence in American life.

Each one of us should ask of himself, "Do I really care to work on a committee? What committee would I like to work on?" Having clarified this for himself he can write to the chairman of the appropriate committee. He can also ask himself, "Have I ideas bearing on the work of any com-

mittee?" If so, he can transmit these ideas. Each member can look about himself to discover psychiatrists in his locality who are not members of The American Psychiatric Association and if they are eligible encourage their membership. According to the Constitution a member is eligible to become a fellow under certain conditions: "Fellows hereafter shall be chosen from members of not less than one year's standing who have specialized in the practice of psychiatry for at least six years." If the member is eligible his application should be submitted as soon as possible. Dr. Dunn's committee has a stupendous task giving individual study to some 800 applications a year. Also a member can look forward to next year and clarify his ideas as to whom he would like as nominees for office, either submitting these to the Nominations Committee or presenting them directly.

The Montreal meeting brought forth many proposals to amend the constitution. Dr. Henry Davidson, Chairman of the Constitution and By-Laws Committee, will arrange these for easy study and get them to members as soon as possible. They were all thoughtfully written. Members should study them carefully so as to be ready to vote next year. If there are other desirable changes not yet provided for it is a member's right to present them or to send them to Dr. Davidson for presentation at the Detroit meeting. Dr. Karl Bowman has accepted the chairmanship of the Nominations Committee.

One could not help but be proud of the meeting in Montreal, the way in which differences of opinion could be accepted in a mutually respectful and dignified manner. It was a forceful demonstration of the capacity of psychiatrists to deal rationally with themselves. It won us high respect from our hosts.

GEORGE S. STEVENSON, M. D.

THE MONTREAL MEETING

The 105th annual meeting of The American Psychiatric Association at the Hotel

Windsor in Montreal, Canada, May 23-27, 1949, was an epoch-making event in the his-

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tory of the organization because of the preparations it achieved for improving the structure and functions of the Association. The contemplated changes will provide for increased participation in the affairs of the Association by the members and will adapt certain administrative procedures to the increased size and complexity of the organization. The general acceptance of these preliminary steps to effecting major changes in the Constitution and By-Laws was a splendid tribute to the work of the Committee on Reorganization and to the large number of members of the Association whose collaboration was most helpful.

Dr. Frank J. Curran and the members of his Program Committee again succeeded in arranging so excellent a scientific program that both the daytime sessions and the evening round-tables consistently attracted large audiences. The entire meeting was pervaded by a spirit of learning and an interest in discussing the topics presented. Dr. Travis E. Dancey and the members of his Committee on Arrangements, together with Mrs. A. E. Moll and her associates who arranged for the entertainment of the ladies, will always be remembered for their excellent judgment in selecting and arranging various functions of the convention to the considerable satisfaction of the 3,008 members and guests who gathered in Montreal. The motion picture program under the supervision of Dr. John P. Lambert, the publicity directed by Dr. J. D. M. Griffin and the members of his Committee on Public Education, and the efficient work of Mr. Austin M. Davies, the Executive Assistant, and his staff—all contributed in large measure to the success of the meeting.

Dr. William C. Menninger officially opened the meeting, and Professor Dr. Albert Le Sage of the University of Montreal delivered a cordial message of welcome in behalf of Honorable J. P. A. Paquette, Minister of Health. The dignity and warmth of Professor Le Sage's message presaged the friendliness and hospitality of the Canadians which the members experienced during their stay in Montreal. The Medical Director, Dr. Daniel Blain, presented his annual report, and the response he received was expression of the confidence and appreciation of the members for his valuable work. Dr. Men-

ninger's brilliant Presidential Address was a fitting climax to the high quality of leadership he had given the Association during his Presidency. The prolonged ovation which was accorded him clearly demonstrated a deep sense of gratitude for the clarity and the wisdom of his address.

The following neurologists and psychiatrists from foreign countries attended the meeting: Dr. Olive M. Elliott of Sydney, Australia; Dr. B. Fareip of Copenhagen; Dr. Birgir Kaada of Oslo; Dr. B. M. Kitson of Bermuda; Dr. Richard E. Masuda of Hawaii; Dr. Henri Hecaen of Paris; Dr. Otto Magnus of Holland; Dr. Louis Mars of Haiti; Dr. P. Pichot of Paris; and Dr. Otto Kauders of Vienna.

On Wednesday morning the results of elections held the previous day were announced as follows: President-Elect, Dr. John C. Whitehorn; Secretary, Dr. Leo H. Bartemeier; Treasurer, Dr. Howard W. Potter; Councillors, Dr. Francis J. Braceland, Dr. Lauren Smith, and Dr. Mesrop A. Tarumianz; Auditor, Dr. Coyt Ham.

The annual dinner that evening was attended by 746 members and guests who were entertained by an excellent French-Canadian male quartet known as "Les Alouettes." This feature was especially enjoyable. Professor David Thomson, professor of biochemistry at McGill University, delighted the members and guests with the wit and humor of his address on "Caries in the Ivory Tower." Following the presentation of the Fellowship Certificates Dr. Menninger received the Past President's medal. Dr. Benjamin Pasamanick was awarded the first annual Hofheimer prize of \$1,500 for his research on the behavioral development of Negro infants.

On Thursday evening Mr. Camillien Houde, the mayor of Montreal, entertained approximately 1,000 members and guests of the Association with cocktails and a buffet supper at the Chalet on Mount Royal. This unusual demonstration of hospitality by the mayor of the city was especially appreciated by all who accepted his invitation. Later during the evening Dr. Marc Trudel, Minister of State and President of the College of Physicians and Surgeons of Quebec, very graciously presided at a well-attended public

meeting sponsored by the Association and the Montreal Council of Social Agencies in the ballroom of the Windsor Hotel. Dr. Henri Hecaen, the official representative of the French Government, spoke on the subject of Mental Health in France during the Occupation, and Dr. William C. Menninger spoke on Psychiatry for Everyday Life.

On Friday morning, the general session opened with report of the Committee on Resolutions by the Chairman, Dr. Benjamin H. Balser. During this meeting Dr. Menninger turned the gavel over to his successor, Dr. George S. Stevenson, who spoke briefly of his hopes and plans for the coming year.

During the business sessions, the Council made a number of important recommendations which were accepted by the membership. It was decided to hold the 1950 meeting in Detroit, May 1 to 5, inclusive. The following were accepted as Affiliate Societies: The Nebraska Society of Neurology and Psychiatry; The Northern California Society of Neurology and Psychiatry; The Milwaukee Neuropsychiatric Society; The Texas Neuropsychiatric Association; The Indiana Society of Neurology and Psychiatry; The Iowa Neuropsychiatric Society; The Maryland Psychiatric Society; and The Washington Psychiatric Society. The following organizations were accepted as Dis-

trict Branch Societies: The Pennsylvania Psychiatric Society as the district branch society for Delaware and Pennsylvania; The Mid-Continent Psychiatric Association as the district branch society for Missouri and Kansas. The Council approved two applications to the Commonwealth Fund: one for a grant to cover the cost of an annual meeting of all the standing committees of the Association for two years; and one for a grant to establish a hospital service in the office of the Medical Director. The Council established three standing committees: Child Psychiatry, Therapy, Resolutions. The Council approved an application signed by 110 members of the Association to establish a Section on Administrative Psychiatry. The Council disapproved of the principle of establishing subspecialty boards of the American Board of Psychiatry and Neurology and specifically a subspecialty board in child psychiatry. The Executive Committee was instructed to obligate no funds of the Association except those appropriated by the Council.

During this 105th annual meeting, 659 applications for various grades of membership were accepted, and the total membership of the Association now numbers 5,293.

LEO H. BARTEMEIER, M.D.,
Secretary.

RESEARCH POSSIBILITIES IN THE DEMENTIAS

Within the period from 1925-1945 the number of patients admitted to the New York state mental hospitals with the diagnoses of senile dementia or dementia with cerebral arteriosclerosis has increased from 20% to 41%. These figures are generally interpreted as reflecting the morbidity of our aging population and are accepted as an unfortunate inevitability, a price to be paid for the gain in life expectancy.

Yet when one examines critically our present state of knowledge, it is impressive how little actually is known about these conditions. Does arteriosclerosis have any etiologic relationship to the conditions diagnosed as "dementia with cerebral arteriosclerosis"? What is "senile dementia" and is the disorder truly related to the aging process? What is the aging process? The clinical symptomatology of the dementias is

not significantly determined by the underlying cause and hence is of little value in differential diagnosis. Further, there is no good correlation between the degree and character of the pathological findings in the brain and the magnitude of intellectual impairment or type of behavior of the patient. Therefore, one might pertinently ask what criteria justify the use of the terms "arteriosclerotic" or "senile" in the diagnosis of dementia. When there is clear-cut clinical or pathological evidence that the dementia results from single or multiple vascular lesions, perhaps the term arteriosclerosis has valid application. Most often no such changes are present. The term senile is only descriptive, referring chiefly to the factor of aging without qualification except that other obvious causes of organic brain disease be absent. With older patients it is often dif-

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difficult to see how on clinical grounds the examiner justifies one diagnosis and excludes the other. Clearly these diagnoses serve merely to hide our ignorance and there is a pressing need for a reconsideration of the etiology of these conditions.

Our studies of delirious patients in general hospitals have brought up several observations important to this problem. In the first place there are many patients who experience significant disturbances in consciousness during the course of an acute or chronic illness, such as pneumonia or heart failure, whose defect in awareness completely escapes the attention of the attending physician because they are not specifically examined for such defects. Such patients may be considered stupid or uncooperative when actually they are experiencing serious disturbances in cerebral metabolism as a complication of the underlying disease. Are these insults to the brain benign and of no significance? Our studies do not justify such an optimistic point of view. It is our impression not only that many of these patients never fully recover, but also that they may be more vulnerable to cerebral damage in the future. Two lines of investigation are suggested: (1) A careful study should be made of the history of demented patients as regards serious illnesses, operations, and previous episodes of delirium. (2) A group of patients who have chronic disease subject to acute decompensations (*i.e.*, valvular heart disease) should be studied before and after hospitalizations, special attention being paid to the electroencephalogram and to performance on psychological testing. Such a study might throw some light on the effect over a long period of time of the repeated disturbances in cerebral physiology that occur during severe illness. The long-term importance of such studies would have to do with prophylaxis.

A second finding among delirious patients is that the disturbance in consciousness can only be rarely accounted for on the basis of one factor alone. In any one patient many different factors may contribute to the disturbance in awareness. These may include fever, the results of impaired liver or kidney function, local or general circulatory disturbances, drugs, nutritional factors, and a host of others. Often it is discovered that one or more of these abnormalities can be

reversed, with striking amelioration of the delirium. It would seem that the same considerations would apply to the dementias. Preoccupation with the less reversible features of the dementia has no doubt stifled research in this important area. For example, in the presence of vascular disease or the changes of senility, is the brain more sensitive to minor alterations in the supply of oxygen or nutrients? The EEG provides an ideal tool for such an investigation. The effects of small changes in O_2 tension, CO_2 tension, blood sugar, vitamins, etc., on the brains of demented patients could be compared with corresponding changes in normal individuals. Using some method of frequency analysis of the EEG, fairly precise thresholds could be determined. Other studies might be directed toward elucidating the physiological adequacy of other organ systems which might indirectly affect the metabolism of the central nervous system.

The most important uncharted area for study has to do with brain metabolism. A considerable literature is available and yet little is known regarding cerebral metabolism in the dementias. Techniques for the measurement of cerebral blood flow and metabolism in man have been devised and should be applied to the study of dementia. The EEG provides a very useful, though indirect, technique for studying metabolic changes as reflected in the electrical potentials of the cortex. Since it is very likely that tissue hypoxia is the basic problem in many instances, studies of ways in which oxygen may be delivered to the tissues more efficiently should be carried out. For example, we have found significant improvement in the EEG of delirious patients to result from inhalation of 100% O_2 even when the arterial oxygen saturation was normal. The possible use of respiratory enzymes or of such substances as malononitrile offer a fertile field for further investigation.

The research possibilities in this area are tremendous. The material is abundant and the problems and techniques are varied enough to suit the tastes of many investigators.

GEORGE L. ENGEL, M. D.,
University of Rochester,
Rochester, N. Y.

NEWS AND NOTES

VACANCIES IN MINNESOTA.—Under Minnesota's new mental health program there is a need for psychiatrists of various grades. Those interested should write to the State Civil Service Department, 122 State Office Bldg., St. Paul, Minn., for information about vacancies.

The 1948 mental health bill authorizes the appointment of a qualified Commissioner of Mental Health and Mental Hospitals who is responsible for supervision of the state-wide program of care and treatment of mentally ill persons and their discharge, placement, and aftercare; and for providing consultative services to the courts and private and public welfare agencies. The bill also authorizes research in the fields of administration, etiology, and therapy.

Minnesota is the first state to specify by law that there will be maintenance of a single standard of food for the patients and employees alike in all state hospitals for the mentally ill. Centralized segregation and specialized facilities for the treatment of the tubercular mentally ill are being established. It is planned that in time all ten of Minnesota's mental hospitals will become restraint-free and teaching hospitals.

RESOLUTION OF NEUROPSYCHIATRIC SOCIETY OF VIRGINIA.—At its meeting in Richmond April 6, 1949, the Neuropsychiatric Society of Virginia adopted the following resolution which was presented at the recent meeting of The American Psychiatric Association in Montreal and accepted by the membership:

"The members of the Neuropsychiatric Society of Virginia, in meeting assembled, find that they are greatly alarmed by the schism now existing in the APA. As an affiliate society to the organization, we resolve that unofficial organizations formed within the larger organization which attempt to usurp the functions of the Committees or of the General Assembly of the APA be discouraged."

DR. PASAMANICK RECEIVES HOFHEIMER AWARD.—At the 1949 convention of The American Psychiatric Association, Dr. Benjamin Pasamanick, in charge of the children's service of the division of psychiatry, Kings County Hospital, Brooklyn, N. Y., and associate in psychiatry at the Long Island College of Medicine, received the first Lester N. Hofheimer Research Award of \$1,500. The award is offered to the psychiatrist under age 40 who has published the best research in the preceding 3 years. The work of Dr. Pasamanick's paper, "A Comparative Study of the Behavioral Development of Negro Infants," was done at the Yale Clinic of Child Development. The paper appeared in the *Journal of Genetic Psychology*, Volume 69, pages 3-44, 1946.

GRANT TO YALE UNIVERSITY FOR STUDENT PSYCHIATRIC GUIDANCE.—A gift of \$2,000,000 has been made to Yale University by the Old Dominion Foundation of Washington, D. C., to provide expansion of Yale's program of psychological and psychiatric assistance and guidance to students. Dr. Clements C. Fry, head of the division of psychiatry and mental hygiene of the Yale Department of Health, will continue to supervise the program.

As planned by Dr. Fry, the functions of the divisions of psychiatry and mental hygiene will be expanded in several directions: clinical, research, training, education, and publication. "It is hoped," Dr. Fry stated, "that under the sponsorship of the division, psychiatry may become a part of the regular college curriculum, so as to meet the increasingly evident need of the doctor, the lawyer, the clergyman, and the educator to acquire some knowledge of this subject during the course of their training."

NATIONAL INSTITUTE OF MENTAL HEALTH.—The resignation of Dr. Lawrence Kolb as director of research projects for the National Institute of Mental

Health, and the appointment of Dr. John Eberhart to that position, effective July 1, has been announced by Surgeon General Leonard A. Scheele.

Dr. Kolb has accepted a position as consultant in psychiatry at the Mayo Clinic, Rochester, Minn.

Dr. Eberhart, formerly a member of the psychology faculty of Northwestern University, later of the Surveys Division, Veterans Administration, joined the Public Health Service staff in 1947 and has been chief psychologist of the Training and Standards Branch of the National Institute of Mental Health. As director of research projects, Dr. Eberhart will administer the program of grants-in-aid for research in the mental health field.

VA RESIDENCIES IN NORTH LITTLE ROCK.—Several openings for residency training in neuropsychiatry are available in the near future in the VA Hospital, North Little Rock, Ark. The training program, which is approved for 3 years or less, is under the direction of the Deans Committees of the University of Arkansas School of Medicine, Little Rock, and the Washington University School of Medicine, St. Louis, Mo. It includes specialized training in both inpatient and outpatient care as well as in child psychiatry and neurology.

Further information may be obtained from the Director of Professional Education, VA Hospital, North Little Rock, Ark.

GRANT TO DR. ETTER, WESTERN STATE PSYCHIATRIC INSTITUTE, PITTSBURGH.—Dr. Grosvenor B. Pearson, director, Western State Psychiatric Institute and Clinic, Pittsburgh, Pa., announces a substantial grant from the Sarah Mellon Scaife Foundation of Pittsburgh to the Institute and specifically to Dr. Lewis E. Etter, roentgenologist, for the completion and publication of his research on the roentgen-anatomical studies of the skull. It is expected that Dr. Etter's findings will be of great advantage to roentgenologists, anatomists, neurologists, neuro-

surgeons, and psychiatrists in teaching and clinical practice. Dr. Etter's exhibit has been shown recently at roentgenological and anatomical meetings in Erie and Philadelphia, Pa., Buffalo, Chicago, and San Francisco, and at the recent meeting of The American Psychiatric Association in Montreal. The Institute has been carrying on this work over recent months, and the grant-in-aid from the Sarah Mellon Scaife Foundation will materially increase the progress of the work.

DR. TRUITT RESIGNS POST.—Dr. Ralph P. Truitt has resigned as professor of psychiatry in the University of Maryland School of Medicine and also as executive secretary of the Mental Hygiene Society of Maryland, in order to devote his full time to private consultation work. For over 21 years Dr. Truitt was connected with these two institutions and was largely responsible for the new Psychiatric Institute now under construction at the University Hospital. He was formerly psychiatrist-in-chief of the psychopathic division of the City Hospitals. He is a former president of the American Orthopsychiatric Association.

Dr. Jacob L. Finesinger, of the Harvard Medical School, has been appointed Dr. Truitt's successor in the reorganized university position.

PSYCHODRAMATIC INSTITUTE.—The eighth and ninth national conferences in training in human relations will be held under the sponsorship of the Psychodramatic Institute, Sept. 3-5 and Nov. 26, 27. Subjects covered will be psychodrama, hypnodrama, sociometry, sociodrama, group psychotherapy, and therapeutic films. For further information write to the Psychodramatic Institute, P. O. Box 311, Beacon, N. Y.

CORRECTION.—The name of Dr. Robert J. Stewart was erroneously included in the list of deceased members printed in the program of the Montreal meeting.

JOINT STATEMENT ON ELECTROSHOCK BY THE PRESIDENTS OF THE AMERICAN PSYCHIATRIC ASSOCIATION AND THE ELECTRO-SHOCK RESEARCH ASSOCIATION

On May 26, 1949, during the annual meeting of The American Psychiatric Association in Montreal, the Committee on Public Education released to the press the following statement signed by William C. Menninger, President of The American Psychiatric Association, and Dr. Nathan K. Rickles, President of the Electro-Shock Research Association.

"Electroshock therapy is accepted today as the most effective physical agent in the successful treatment of the majority of the

affective psychoses when given by properly qualified psychiatrists.

"It should be stressed that at no time is electroshock advanced as a cure-all, but only as one very effective agent in selected classes of mental illness. It should always be preceded by a complete and thorough psychiatric study of the patient which includes an evaluation of his mental and physical status, his family, and his environment, and also be followed with adequate psychosocial study and psychotherapeutic guidance."

APA MAIL POUCH: A NEW BULK MAILING SERVICE

The Medical Director's Office will initiate a new bulk mailing service this autumn which will enable any member to send all other members announcements, reprints, questionnaires, etc., at much less cost than by mailing such materials independently. The first *APA Mail Pouch* will be mailed September 15, if enough materials are received by then, and monthly thereafter, if practicable. (The name *Pouch* is borrowed from the "diplomatic pouch" used by foreign offices.)

Approved by the Council for a trial period, the *Pouch* service charges will be proportionate to the weight of printed materials submitted.

The economy of this service is due to the use of 3rd class postage and centralized mailing in the Medical Director's Office, including the purchase of envelopes, addressographing, etc. For example, a single letter-size sheet printed front and back could be included in the *Pouch* for as little as \$12 and a maximum of \$38, depending on the number of such sheets in the *Pouch*. If a member, independently, were to mail a letter to all other members it would cost him roughly \$150.00. To make use of the *Pouch* a member need only send 5,400 copies of his printed matter to the Medical Director's Office.

Each *Pouch* will contain the monthly Newsletter and official communications

from officers, committee chairmen, and the administrative staff.

It is hoped that Affiliate Societies, institutions, schools, and training centers will find the *Pouch* an ideal method of reaching American psychiatrists with announcements and matters of general interest.

It is important for all members to realize that the *Pouch* is strictly a distributive service. The inclusion of nonofficial matter in it will imply no APA endorsement thereof.

As a further convenience to members, particularly those in institutional work, the *Pouch* will be open to *positions vacant* and *positions wanted* notices, at the rate of 15¢ a word or \$6 for each 50 words to cover both printing and mailing costs. If members furnish printed copies of their announcements, the only charge will be for mailing. (The free Job Roster will be continued; but the Roster contains only 2- or 3-line announcements and is sent to members only on request.)

The *Pouch* will also be open to publishers' direct-mail advertising matter (book lists with order blanks, return address postcards, etc.) at the rate of \$100 for printed matter up to an ounce and \$50 for each additional half ounce. If experience shows that this advertising competes with the JOURNAL, it will be discontinued.

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to stimulate new activities and interests and speed the execution of the affairs of the Association. All members are urged to give

immediate thought to how they may use the *Pouch*. The Medical Director's Office will furnish further information on request.

DANIEL BLAIN, M. D.

THE AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC.

The following were certified at New York City, May, 1949.

PSYCHIATRY

Anderson, John M., Topeka State Hosp., Topeka, Kans.
 Andren, Henry E., New England Sant., Melrose, P. O., Stoneham, Mass.
 Arnot, Robert E., 202 Sherman Road, Chestnut Hill, Mass.
 Baer, Irving N., 1294 Medford, Topeka, Kans.
 Baum, O. Eugen, Delaware State Hosp., Farnhurst, Del.
 Berger, Benjamin, 4304 Murray Ave., Pittsburgh, Pa.
 Bettis, Moody C., Winter VA Hosp., Topeka, Kans.
 Bill, Robert O., Winter VA Hosp., Topeka, Kans.
 Bird, H. Waldo, Winter VA Hosp., Topeka, Kans.
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 Blumenthal, Irving J., VA Hosp., Bedford, Mass.
 Brown, David J., Elgin State Hosp., Elgin, Ill.
 Brown, DeWitt Wilcox, Indiana Univ. Med. Cen., Indianapolis, Ind.
 Brunner, Richard A., Rogers Lane, Wallingford, Pa.
 Burns, Edward M., Univ. of Wisconsin, Madison, Wisc.
 Camara-Peon, Nicholas, Pontiac State Hosp., Pontiac, Mich.
 Cavanagh, John R., US Nav. Disc. Brks., Med. Dept., Nav. Base, Portsmouth, N. H.
 Coltharp, Ralph W., Menninger Foundation, Topeka, Kans.
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 Factor, Morris, 435 E. 74th St., New York, N. Y.
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 Kaufman, I. Charles, 80 E. Concord St., Boston, Mass.
 Kennedy, Robert E., VA Hosp., No. Little Rock, Ark.
 Kennison, Warren S., VA Ment. Hyg. Clin., Guardian Bldg., Detroit, Mich.
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 Lerner, Samuel H., Univ. Hosp., Cleveland, Ohio.
 Leskin, Louis W., VA Hosp., Waco, Tex.
 Lihn, Henry, Winter VA Hosp., Topeka, Kans.
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 Lynch, Joseph P., Cushing VA Hosp., Framingham, Mass.
 Maddux, James F., 2200 Fidelity Bldg., Kansas City, Mo.
 Magee, Harold S., Station "A", Trenton, N. J.
 Major, Stephen, 35 College St., Birmingham, N. Y.
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*Denotes supplementary certification.

BOOK REVIEWS

THE PEOPLE'S CHOICE (2nd edition). By Paul F. Lazarsfeld, Bernard Berelson, and Hazel Gaudet. (New York: Columbia University Press, 1948.)

This attractive and well-written little book reports a study of public opinion in the making. Seeking "to discover how and why people decided to vote as they did," in the presidential campaign of 1940, a group of social scientists stationed themselves in Erie County, Ohio, and during the period May to November of that year interviewed the same 600 people once a month for 7 months. The authors consider their work to be an instance of the new and promising "dynamic research" in social science, a type of research in which attention is focused upon significant social events while they are happening. A briefer study, carried out in Denver during the presidential campaign of 1944, is also referred to in this second edition of the present volume.

The interviews fell naturally into 2 groups: those whose political opinions remained constant throughout the period of the study and those who changed in one way or another. The study was concerned with the characteristics of these 2 groups of people, with the kinds of influence that were brought to bear upon them during the course of the campaign, with the determinants of change and of constancy of political party preference—whether it was Republican, Democratic, or neutral.

Many of the findings confirm, but state in more precise terms, what has long been held by experienced practical politicians, *i. e.*, that the overwhelming majority of voters have their minds made up at least 6 months before the election (only 9% actually changed their party in the Erie County study) and that by far the most important influence for change was personal contact at the last minute before election. Other findings were, as the authors point out, more surprising, *e. g.*, that people who change their political opinion, far from being realistic "thinking men," are usually rather unconcerned with respect to the campaign and its outcome.

Although the authors show their familiarity with psychodynamic concepts, these find little place in the study. The main reason seems to be that political behavior, at least the choice between the 2 major parties, seems to be so largely a function of economic and social factors that these naturally deserve first attention. Nevertheless, it is a major conclusion of the study that, when it comes to the "changers" and waverers, psychodynamic factors have the crucial rôle. Although the number of "changers" and waverers is relatively small, their power to swing an election or even to spearhead a new political trend seems well enough established. The authors promise that in future research they will employ interviews that go below the surface

and that they will make case studies of key individuals. One may hope that the authors and their interviewers were on the job for the 6 months ending early in November, 1948, and that their psychodynamically oriented case studies gave them the insights and predictive ability which seem to have been denied to most other observers and students of public opinion.

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TRIBES OF THE LIBERIAN HINTERLAND. Edited by George Schwab with additional material by George W. Harley. (Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. XXXI, Cambridge, Massachusetts, 1947.)

This volume, a report of the Peabody Museum expedition to Liberia, led by Dr. Schwab in 1928, with the additional material added by Dr. Harley, is of mixed value. Both authors, by reason of long residence as medical missionaries in that part of Africa, had a vast first-hand knowledge. On the other hand, much of the material here presented was collected in an 8 months' tour, only 75 days of which were spent in actual ethnological enquiry. It contains a mass of information of unequal reliability concerning two tribes, the Gbunde and the Loma, with additional notes on other adjacent and related tribes. While these tribes are closely related linguistically and otherwise, there are many variations. Hence to lump them together and to describe each culture trait or group of traits by itself, with notes on tribal variations, confuses rather than informs the reader. For one interested in problems of distribution of cultural elements it will be useful; for the student interested in primitive societies as culture wholes, it will be of extremely limited value; it but provides some factual data out of which may or may not be constructed a convincing picture of an existent society. The figures and the plates are numerous and good.

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MEDISCHE PSYCHOLOGIE EN PATHOPSYCHOLOGIE. By E. A. D. E. Carp. (Amsterdam: Scheltema and Holkema, 1947.)

In the two parts of this comprehensive book Dr. Carp, Professor of Psychiatry at Leiden, attempts to develop a system of human psychology in its normal and abnormal functioning. His approach is, theoretically, based on two principles. First of all, he stresses the point that man is to be considered as a biological-psychological entity;

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by emphasizing this unit of mind and matter the author is able to maintain his ultimately deistic viewpoint in regard to the place and function of man in creation. It is understandable that Carp, secondly, follows the principles of a genetic psychology explaining the development of man from a simple, diffuse entity into more differentiated and structured states of existence.

In spite of this holistic credo Carp yet distinguishes on the one hand between matter, vital (mortal) mind and supravital (immortal) soul, the divine element of human personality; on the other hand he, in a rather arbitrary fashion, dissects the "total" human personality into "personality facets," which, in last instance, are based on the old Aristotelian triad of thought, emotion, and volition. Elaborating on this triad, and guided by the various principles of 19th century psychology he finally draws up the following inventory constituting the "personality structure": instinctual life, temperament, psychomotorics, intelligence, character, consciousness, thinking, feeling, volition.

Carp does not anywhere disclose why he considers these segments of the personality as basic and autonomous and fails to discuss the obvious overlapping of the different "facets." It seems difficult to imagine, for instance, instinctual life and feeling as two disparate areas or to understand why consciousness, which is implicit in any form of psychological existence, is to be considered as a separate structural element.

In the first part of his book, describing psychological growth and development, the author now attempts to apply the genetic point of view to each one of these facets. This leads to considerable difficulty. For instance, in discussing emotional development and character formation Carp attempts to apply the genetic principle to the Freudian theory, making some attempt, for instance, to define the id as a purely biological, instinctual concept without adequate consideration of the psychodynamic implications.

In the second part of the book Carp extends his vague and inconclusive theory of personality facets into the area of psychopathology. Following his original "inventory" he proceeds to classify psychopathological manifestations as disturbances of instinctual life, of temperament, of psychomotorics, etc. The author rather than describing or classifying symptoms is obviously intent to form a psychopathology in accordance with his own "theoretical" concepts which by themselves are inconsistent.

In these chapters on "Pathopsychology" the author is forced to abandon his genetic and deistic viewpoints altogether, especially when it comes to the discussion of, for instance, the function and meaning of certain disturbances. These chapters are actually a review of various psychopathological manifestations seen in the light of different schools and approached, rather indiscriminately, by various methods: clinical classification, phenomenology, psychoanalysis, experimental psychology, constitutional viewpoints, and others.

All in all the book contains a great deal of ma-

terial which is reviewed, however, without system or any consistent guiding principle.

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ORTHOPSYCHIATRY 1923-1948: RETROSPECT AND PROSPECT. Edited by *Lawson G. Lowrey and Victoria Sloan*. (American Orthopsychiatric Association, 1948.)

This attractive volume has been prepared to commemorate the 25th anniversary of the founding of the American Orthopsychiatric Association. But it does a great deal more than that. In 25 outstandingly fine articles by approximately the same number of distinguished workers in the field of orthopsychiatry the history of the development of the child guidance clinic is also commemorated along with its pioneer workers; the interrelationships of all the social sciences within orthopsychiatry are graphically recorded; and the methods by which orthopsychiatry achieves its therapeutic purposes are well set out.

Not only is each article a record of time, place, and persons but also of how and why and whither. The articles are written with scholarly carefulness and with adequate documentation. Taken altogether they are built into a fascinating historical encyclopedia, a source book and reference volume of fine educational value. The volume as a whole is certainly more than the sum of its parts.

There are four parts. Part I is chiefly historical and is permanently for the record. Part II is entitled "Interpenetration of Disciplines" and its chapters discuss the integrations in orthopsychiatry of clinical psychology, education, anthropology, pediatrics, and family casework. It also includes a symposium on the rôle of the scientist in society—as presented at the 1947 annual meeting. Part III demonstrates the "Functions and Practices" of orthopsychiatry in certain outstanding clinics, the utilization of investigative and treatment procedures in the mental health clinic and in the home, and discusses the outlook for the future. Part IV is called an "Appendix" and consists largely of a reprint of a 1930 symposium on behavior problems in children. Biographical sketches of the contributors conclude this volume.

The volume is attractive in its physical aspects, being well printed on excellent paper. It contains photographs of all presidents of the American Orthopsychiatric Association since its formation. The membership of the Association can well be proud of its 25th anniversary volume.

This book can be cordially, even urgently, recommended to all psychiatrists for its mind-broadening effects as well as for the information it contains.

GEORGE H. STEVENSON, M. D.,
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TWENTIETH CENTURY SPEECH AND VOICE CORRECTION. Edited by *Emil Froeschels, M. D.* (New York: Philosophical Library, 1948.)

A symposium on speech pathology and speech training is rarely an intellectual love feast, and

the editor of this volume wisely points out that the reader will not be surprised if he finds widely divergent opinions expressed by the various collaborators. The whole subject of language function and its disturbances finds itself too far on the fringes of interest on the part of the average neurologist, psychiatrist, and psychologist. As a consequence the speech specialist in his search for facts finds himself dealing with a welter of overlapping, confusing terminologies. He has naturally proceeded to develop his own vocabulary which has only served to add to the semantic maze.

To illustrate this "confusion of tongues" Kasteen discusses speechlessness in children and records such synonyms as alalia, aphemia, aphasia, audism, idiopathic dumbness, dysphasia, and idiopathic language retardation.

In the leading article Dr. Froeschels offers a painstaking demonstration of the anatomy and physiology of voice production. The refined dynamics of the vocal cords is integrated with the so-called "Ausatzrohr" which consists of all cavities above the larynx which make it possible to emit different sounds at the same pitch. This chapter is only marred by small bursts of what another co-writer labels "dialectolalia," where continental syntax has had too liberal and too cumbersome a translation.

Perhaps one other relatively picayune matter which upsets the ethical sensibilities of the clinician is found in the chapter on education of the deaf child. Here in an otherwise dignified discourse are suddenly interjected, like the blatant billboards on a scenic highway, the names and addresses of two speech clinics which are purported to be "of great value to both the parents and the child."

Of direct interest to the physician are the chapters on prosthetic therapy of cleft palate, voice training after laryngectomy, and disorders of articulation due to gunshot wounds of the head and neck in World War II.

Because stuttering constitutes one of the most common and intriguing disorders of speech, Froeschels' refreshing concept of its mechanism and treatment is worthy of first attention. He emphasizes the fact—startling to some—that children never stutter at the start of speech but usually between the ages of 3 to 5 years. If the patient is a young child still in the stage of syllable repetition (clonus) but without pressure (tonus) it is essential that no one draw attention to his speech and story repetition, and skill in spontaneous sentence formation should be encouraged. When there are signs of tonus the drawing method of Liebman whereby vowel sounds in reading and conversation are prolonged is advocated.

For older children and adults who stutter, Froeschels has proposed the chewing method. Chewing, he is convinced, is the physiologic substratum of human speech and chewing and talking are identical or parallel functions. Speech is relearned as an elaboration of mastication and in the learning clonus and tonus are forgotten.

This volume illuminates many facets of a subject which sprawls over a wide territory, which is

replete with controversy, brilliant in word coinage, and frequently sound and practical in its therapeutic techniques.

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INTRACRANIAL TUMOURS (2nd edition). By Percival Bailey. (Springfield, Illinois: Charles C. Thomas, and Toronto: The Ryerson Press, 1948.)

In this new edition the author has altered a few of the figures which appeared in the first edition in 1933 and has added a series of x-ray plates illustrating the value of radiology in tumour diagnosis.

The general structure of the volume remains as before and it will continue to be a useful and popular presentation of the subject.

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THE AMERICAN PEOPLE. By Geoffrey Gorer. (New York: W. W. Norton and Company, Inc., 1948.)

The American People is a series of brilliant essays written for the informed lay public, about some aspects of contemporary American culture, using the methods of thinking which have been developed in the borderline disciplines of cultural anthropology, social psychoanalysis, and child development studies. Mr. Gorer takes considerable pains to safeguard his generalizations, in emphasizing that he is mainly concerned with the middle class values of the East and Middle West, which contribute so significantly to the "official cultural values" in the United States, and that his statements are qualitative statements about pattern rather than statements which are meant to be comprehensive—covering all American culture, either regionally or in terms of class, or all periods of American history, or all aspects of American character.

The book is significant for psychiatrists for a number of reasons. First, advances in psychiatry, and especially in preventive psychiatry and the wide field of mental health, are dependent upon an intelligent lay public, who have a working grasp of the relationship of disturbances of human functioning to all human functioning within a given society, and are sufficiently armored against their own fears of these relationships to be able to face psychiatric problems and help to solve them, whether this be public support, as of better training and hospital facilities, earlier and more intelligent referral of individuals for psychiatric treatment, or alteration of related institutions, like the school, to translate psychiatric findings. Second, it is becoming more important for psychiatrists to be able to use an understanding of the culture in which they work, and the cultures from which their patients come, in a more articulate and systematic fashion; this is particularly true in treating patients from another country, another class, or another region.

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This need is reinforced in many cases by the circumstance that so many leading thinkers and practitioners in the field—especially in the field of psychoanalytic practice—are either Europeans or were trained in Europe, so that systematic data on the American scene cast in terms of clinical relevance are specially useful. As the book is written with wit and facility, it has been widely read and discussed, and therefore forms a more than usually useful bridge, for the individual psychiatrist working in some of the wider implications of our new understandings of how character is formed within a given institutional pattern.

The psychiatric reader will wish to know the place of such a study within the formal anthropological disciplines from which it stems. Cultural anthropology is still a clinical discipline, that is, it is dependent upon the application of systematic insights, by an individual who embodies those insights, who has been trained to see, to listen, to recognize, to order a set of sense impressions in ways that have been found relevant and useful, working through interviewing and observations of living subjects. Anthropologists are trained to make such observations by working among primitive peoples, whose differences from ourselves are striking enough to provide the necessary training, and also to permit the field worker to relate each observation to the whole cultural system. Like the clinical psychiatrist, the anthropologist learns to look for significant and relevant regularities; he is not concerned with statistical frequencies as such, but with sequence, pattern, proportion. His observations should be such that sufficiently refined mathematical methods may ultimately put them to the test, but they are not yet—at this stage of initial delineation of the characteristic behavior pattern of a group of individuals reared within the same tradition—suitable for such verification.

In making any statements about the character structure of members of a complex modern society, the anthropologist encounters the same order of difficulty as the psychiatrist who attempts to write in general abstract terms about one type of case, e.g., compulsive neurotics. There are conspicuous exceptions to every generalization, and neither the lay reader nor the type of practitioner who finds difficulty in seeing the woods for the trees will agree that such generalizations are valid.

It is against a background of such parallels between clinical practice, and attempts to establish regularities which transcend, while relying upon, the individual case, that Gorer's book will be most intelligible. This is essentially a diagnostic study, in which a practiced and trained observer brings into relationship methods of child rearing, attitudes toward money, toward business and good works, toward politics, recognizing and relating them into a whole, as the clinician does the remarks, the gestures, the reminiscences, and the known circumstances of a patient's life. Only in *The American People*, the data are not the patient's dream image, but the cartoons from the contemporary press, not the individual weaning history, but the approved and recommended pediatric practices under which

the present generation was reared, not the patient's reservations about paying the agreed-on fee, but the way in which the American people respond to appeals to share food or funds with the needy in other countries. The interrelationships between the stereotype images of Uncle Sam and the Goddess of Liberty and certain attitudes towards parents are ingeniously traced; the split between business and the ethics of good works is related to the way in which American children are so preponderantly trained by women.

Just as the anthropologist finds his most vivid learning material in the behavior of a people, removed in time and space from his own traditions, so also the psychiatrist may find much of interest in examining the resistances to bringing accepted cultural behavior into the area of awareness. Certain regularities in the resistance appear: the emphasis on the fact that Mr. Gorer is writing as an Englishman (which is frankly admitted by Mr. Gorer himself), the accusation that he has not used all the documented history of the United States—which is also a familiar difficulty to the clinician who feels that the anamnesis of the patient provides adequate data on the contemporary pattern of the patient's psychological responses. The book raises the additional problem of how much insight may be safely thrust upon the lay reader who has not, after all, asked for a consultation and is not protected by the physician's alert individual attention. Mr. Gorer has woven through the book a large number of references to fears of passivity characteristic of the American male character structure, which although heavily guarded are possibly not guarded enough, not to arouse great resistance.

The American People is a brilliant contribution to our growing understanding of the problems involved in the relationship between the cultural patterns and forms of individual breakdown.

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TWO-WAY STREET: THE EMERGENCE OF THE PUBLIC RELATIONS COUNSEL. By Eric F. Goldman. (Boston, Mass.: Bellman Publishing Company, Inc., 1948).

The importance which "public relations" have assumed in the day-to-day life of the North American continent makes a book such as this one by Dr. Eric F. Goldman important.

Not only is it important to those who wish to influence public opinion, but perhaps even more so to those who are influenced.

In a democratic society such as ours, all deliberate influencing of public opinion merits the most critical study and, if undesirable censorship regulations are to be avoided, those seeking to influence the public must conduct their campaigns along strictly ethical lines and those brought under such influence must learn to recognize propaganda and to be discriminating as to its ends.

The first step towards such recognition and discrimination is to try to understand the mechanism

of what has come generally to be known as "public relations," and the history of its henchman, the Public Relations Counsel.

Dr. Goldman's book is a good beginning to such understanding. The pages on the early stalwarts in the public relations field—not then known by that name!—are interesting and Dr. Goldman ably describes the early irresponsibility of some of them. Then he shows how, gradually, a more conscientious attitude developed, leading to the establishment of the "Public Relations Counsel" on a level of professional standing.

This little book is well documented, numbers in the text linking the reader to the end of the book and several pages of notes and documentation.

NIK CAVELL,

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Toronto.

PROGRESS IN PSYCHIATRY AND NEUROLOGY, Volume III. Edited by *E. A. Spiegel, M.D.* (New York: Grune and Stratton, 1948.)

This excellent volume reviews the outstanding contributions during the year in neurology and psychiatry. The material is divided into 4 parts under the headings of Basic Sciences, Neurology, Neurosurgery, and Psychiatry. Each of the 37 chapters has been written by a well-qualified authority, and altogether there are 69 contributors. The material reviewed has been increased over that covered in previous years: over 2,800 papers have been included. The dynamic approach in the field of psychiatry and the introduction and study of somatic methods of treatment have been stressed. New chapters have been added on mental deficiency and criminal psychiatry. In general the articles are written in sufficient detail to present the subjects in a readable and comprehensive manner.

In such a review it is impossible to do justice to the variety of subjects discussed. The particular field of interest of the reader will lead him to scan certain chapters first. Some new chapters have been added because of their timeliness or because of recent developments and these, too, merit priority in reading. Some such chapters are those on electroencephalography, neurosyphilis, physiology and pharmacology of the nervous system, psychosurgery, mental hygiene, criminal psychopathology, psychosomatic medicine, group therapy, alcoholism, and rehabilitation.

The volume is of primary interest to the neurologist and psychiatrist, and is of particular value to one, a psychiatrist for example, who is enabled in a short time to read of developments in allied fields with which he might not be conversant. Medical men in various other specialties and in general practice will find the volume most informative.

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THE 1948 YEAR BOOK OF NEUROLOGY, PSYCHIATRY AND NEUROSURGERY. Edited by *Hans H. Reese, M.D., and Mabel G. Masten, M.D.* (neu-

rology); *Nolan D. C. Lewis, M.D.* (psychiatry); *Percival Bailey, M.D.* (neurosurgery). (Chicago: The Year Book Publishers, 1949.)

The editorial board and general arrangement of content of the Year Book have remained the same since 1945, when the new section on neurosurgery was incorporated. There is inevitably some overlap between the three fields, but some further attempt has been made to define subject matter and draw convenient boundary lines. The discussion of brain tumors has been transferred from the section on neurology to that on neurosurgery; the convulsive disorders are dealt with in both these sections; psychosurgery is treated in both the sections, psychiatry and neurosurgery; the uses of electroencephalography are reviewed in all three sections.

New procedures in so-called psychosurgery (not a very happily chosen term, but one that seems to have become established) have been conspicuous during the year, including lobectomy, topectomy, transorbital lobotomy. Bailey states that attempts to replace lobotomy by topectomy (removal of specific frontal areas) have not been successful. He sounds also a note of warning in the use of transorbital lobotomy: "It is being used in psychiatrists' offices without provision to deal with complications which must occasionally result. Such a blind procedure is unjustifiable, and it is to be feared that its simplicity will cause it to be used too freely and bring disrepute on a potentially very useful measure."

Particularly useful to psychiatrists is Nolan Lewis' 90-page review of the subject of therapy, wherein are amply considered psychotherapy and group therapy; the various forms of shock therapy, singly and in combination; electronarcosis; psychosurgery, its indications and risks; and various pharmacologic and other measures.

Lewis draws attention—as cannot be done too emphatically—to a mischievous consequence of the current overpopularization of psychiatry—for which one would like to believe only non-psychiatrists are responsible. Writes Lewis: "Probably no other specialty in medicine has attracted such an assortment of unqualified persons as psychiatry. All sorts of professional people as well as laymen are nibbling at its periphery. Mind-healing methods and ideas of curious, naive construction are proposed by those who have little or no orientation in the most complex of all specialties. Even among those who should be informed, and thus conservative, one finds a tendency to propose clever explanations of phenomena, the actual nature of which is still unknown, and the formulation of many sets of assumptions having little or no basis in fact." (This last sentence deserves italics, but as the author did not use them the reviewer only offers the suggestion.)

The 1948 Year Book upholds its standard of excellence as a work of reference in very compact form. It contains numerous illustrations and is fully indexed.

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IN MEMORIAM

PROFESSOR KARL BONHOEFFER

1868-1948

Karl Bonhoeffer, dean of German psychiatry, professor emeritus, honorary member of The American Psychiatric Association and of many other professional organizations, died in his home in Berlin on December 4, 1948. Eight months previously his 80th birthday was celebrated throughout the scientific world and jubilee volumes were dedicated to him on the occasion. The honorary membership of The American Psychiatric Association, conferred upon him in 1948, was modestly esteemed by him more as a token of the revived internationality of science than as a personal honor. This JOURNAL has paid tribute also to his personal integrity as evinced by his resistance to the totalitarian régime and his willingness to accept the consequences for his political convictions.

Karl Bonhoeffer, born in Neresheim, Württemberg, March 31, 1868, descended from a Swabian family which, through several centuries, has contributed many outstanding scientists, judges, government officials, and theologians to the German cultural sphere. He studied medicine in Tübingen and obtained his degree in 1892. His early interest in psychiatry and neurology was enduringly influenced and directed into well-defined channels while he was assistant to Carl Wernicke. Significantly, his first paper, "Seitenstrangerscheinungen bei akuten Psychosen" (1896) exposed the fundamental method of his scientific approach, namely: psychoses and organic functions of the nervous system are necessarily interdependent according to strict natural laws. Wernicke had created the theoretical premises of this principle. Bonhoeffer's contribution lay in filling in this outline with empirical content, in demonstrating the fruitfulness of the idea by clinical observation and scientific evaluation.

In 1897 Bonhoeffer became a member of the Medical Faculty of Breslau, upon presentation of the paper, "Die Geisteszustände

der Alkoholdeliranten," which remains a milestone in the history of psychiatry. In recognition of his authority in clinical and research work, Bonhoeffer was called to Königsberg in 1903 as full professor of psychiatry. In 1904 he accepted the same position at Heidelberg. In 1910 he succeeded his teacher Wernicke in Breslau. In 1912 he went to Berlin, where he directed the Psychiatrische und Nervenlinik der Charité as full professor of psychiatry and neurology until his retirement (1938). It is not quite appropriate to refer to the rest of his life as "retirement"; he continued working as clinician, teacher, and author up to within a few days of his death. He remained true to his destiny, gravely afflicted yet not overcome by the tragic fate which his nearest of kin brought upon themselves by the sincerity of their political convictions.

Bonhoeffer's works embrace the entire realm of psychiatry, neurology, neuropsychology, and neuropathology, in each of which he opened fundamentally new vistas. His above-mentioned studies of alcoholism have remained the basis for all further clinical research and have hardly been enlarged in their essentials. They were followed by the excellent clinicosociological study, "Beitrag zur Kenntnis des grosstädtischen Vagabondentums" (1900). The early (1897) work, "Ein Beitrag zur Lokalisation der choreatischen Bewegungen," anticipated by decades the localization of choreatic motor disorders; Marburg in one of his last papers acknowledges the anatomical and neuropathological importance of this discovery. The proficiency of Bonhoeffer's method, which coördinates clinical observation and comparative anatomy, is obvious in his studies of aphasia, agrammatism, encephalitis, and of the regio subthalamica. His concept of "Dissociation of Sleep Components" has augmented considerably the knowledge of

the pathological mechanism of epidemic encephalitis.

Clinical psychiatry owes to Bonhoeffer one of its outstanding advances, the recognition and description of the "Exogenous Reaction Type." In his contribution to Aschaffenburg's "Handbuch der Psychiatrie" he treated the manifold psychoses of exogenous origin and demonstrated the homogeneous prototype by which the nervous system reacts to diverse pathogenic agents, as infection, intoxication, metabolic disorders, trauma, etc. Thus Bonhoeffer identified a fundamental nerve function and simultaneously created a new basis to distinguish diagnostically "exogenous" and "endogenous" psychoses.

His contributions to the medical experiences in World War I demonstrated the validity of his nosological concept. The papers dealing with war- and accident-neuroses have promoted considerably the understanding of the psychological dynamics and medicolegal and sociological problems involved. Of his studies concerning the endogenous psychoses, mention may be made of the penetrating paper in which he establishes a relation between obsessive-compulsive phenomena and manic-depressive disorders; here again the synthesis of keenest clinical investigation and critical perspective of development and symptomatology proves valid and propitious.

Though many contemporary neuropsychiatrists may proudly call themselves his pupils, there is no "Bonhoeffer school" in psychi-

atry; there is no "Bonhoeffer's disease" or "Bonhoeffer's syndrome." The magnanimity of his personality and the masterly scholarship blended with a philosophical modesty stood aloof from any ostentation or sectarianism. Bonhoeffer's doctrine has assumed more and more the quality of anonymity, yet the practice of modern psychiatry is based indisputably on the fundamentals of his concepts. Bonhoeffer's scientific opus has become an integral part of psychiatry.

His students often had difficulty in grasping the significance of his teachings, in penetrating through his undramatic presentation to the essence of his concept of psychiatry. His collaborators, however, felt themselves privileged and happy to follow the suggestions of this master of investigation, to take up the problems he presented, to understand the scientific and human attitudes of Bonhoeffer's personality. With reverence for tradition which acknowledged progress only after critical examination, he united a benevolence which tolerated deviations from or oppositions to his own opinion. To this, his editorship of the "Monatsschrift für Psychiatrie und Neurologie," which he held for 25 years, bears eloquent witness. Today his pupils are dispersed throughout the world, in all fields of psychiatry, neurology, and psychotherapy. His life work lives on in their efforts. His biography is both an outstanding chapter in the annals of psychiatry and a memorial of a great man to whom honor and gratitude are due.

PAUL B. JOSSMANN, M. D.

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